1979

The Relationship Between Perceived Locus Of Control And Achievement Among Filipino-American Students In The Elementary Grades.

Estela Guevara Pinga
University of the Pacific

THE RELATIONSHIP BETWEEN PERCEIVED LOCUS OF CONTROL AND ACHIEVEMENT AMONG FILIPINO-AMERICAN STUDENTS IN THE ELEMENTARY GRADES

A Dissertation

Presented to

the Faculty of the Graduate School

University of the Pacific

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

by

Estela G. Pinga

May 1979

May,1979

This dissertation, written and submitted by

Estela Guevara Pinga

is approved for recommendation to the Committee on Graduate Studies, University of the Pacific

Dean of the School or Department Chairman:

Oscar T. Jarvis, Ed.D.

Dissertation Committee:

Augustine García Chairman

Augustine García, Ph.D.

Bobby R. Hopkins, Ph.D.

Fe María Hufana, Ph.D.

Ezekiel S. Ramirez, Ph.D.

Randall E. Rockey, Ph.D.

Dated April 4, 1979

THE RELATIONSHIP BETWEEN PERCEIVED LOCUS OF CONTROL AND ACHIEVEMENT AMONG FILIPINO-AMERICAN STUDENTS IN THE ELEMENTARY GRADES

Abstract of Dissertation

Purpose. The purpose of this dissertation was to verify research information concerning perceived locus of control (PLC) on a population sample composed of 154 Filipino-American students in Stockton Unified School District. Perceived locus of control is a personality construct derived from Julian Rotter's social learning theory. Rotter posits that the probability of the occurrence of a particular behavior is determined, not only by the importance of the goal to the individual, but also by his expectancy that this goal will be achieved as a consequence of the behavior. PLC refers to an individual's perception of the causal relationship between his behavior and its consequences. An individual who perceives himself as largely in control of the results of his behavior is labeled Internal; one who perceives these results as largely determined by persons other than himself or by circumstances beyond his control, such as luck or chance, are labeled External. An Internal, then, ascribes responsibility for the events in his life to himself; an External ascribes such responsibility to forces outside himself.

Eight hypotheses were formulated for the study. The central hypothesis predicted PLC-achievement relationship (Hypothesis One). Three other major hypotheses investigated PLC interaction with demographic variables, gender, generational status, and socioeconomic level (SEL), in relationship to school achievement (Hypotheses Two, Three, and Four). Four minor hypotheses tested the same demographic variables in addition to age level as potential PLC correlates.

Procedures. The Children's Nowicki-Strickland I-E scale provided the data on which the PLC categories were based (Internal, Medium, and External). The school achievement indicators used were the results of the Metropolitan Achievement Tests administered in SUSD in Spring, 1978. The two socioeconomic classes were determined through the Index of Status Characteristics by Warner, Meeker, and Eels. The demographic data were derived from the parents' information sheets and from school records. The principal statistical procedure used was the Analysis of Variance. The Pearson Correlational procedure was also employed to test the significance of correlations in subpopulations of age, gender, generational status, and socioeconomic level.

Findings. The hypothesis of primary interest predicting PLC-achievement relationship was substantially supported in both reading and math at the selected level of significance, α .05.

Of the three interaction hypotheses, only the PLC-SEL interaction achieved significance. Achievement was found to vary systematically with PLC among the middle class students with Internality being associated with higher achievement. On the other hand, no significant PLC-achievement relationship emerged for the lower class students. Neither gender nor generational status were shown to significantly interact with PLC, thus the predicted PLC-achievement association obtained across both gender groups and the three generational levels.

SEL was revealed to be the most effective indicator of control orientation among the four variables considered, with the middle class group displaying higher Internal scores than their lower class peers. Moreover, the middle class students evidenced distinctive progress toward Internality with each age level while the lower class children remained at a similar PLC level. Also validated in this study was the theoretical assumption that Internality develops with age. Gender and generational status were not found to be significantly related to PLC.

The overall picture, then, verifies the notion that PLC is importantly related to academic achievement, but it appears that this relationship was carried to significance only by the middle class children. Control orientation among the lower class group did not differentiate achievement significantly. The results also suggest that Internality does develop with age, but only under advantageous circumstances such as those to which the middle class children are exposed. The poorer children failed to show the progressive development of Internality which the middle-class children did.

Among the non-hypothesized findings were the following: (1) SEL and gender turned out to be powerful achievement predictors besides PLC: and (2) the youngest age group evinced the reverse PLC-achievement relationship in which the Externals were the highest achievers and the Internals the lowest achievers.

Recommendations. The results of this study reaffirm previous research findings that Internality is linked with higher achievement and with higher SEL. Since Externality is believed to evolve from a history of non-validation of experience, classroom strategies should be success oriented, accentuating positive, rather than negative feedback. Furthermore, in view of the inability of Externals to recognize contingencies between behavior and its consequences, intervention strategies should emphasize cause-effect relationships. Finally, the teacher's own perceptions of what the lower class children can achieve and how they should achieve could have bearing on the differential development of control orientation and the behavioral concomitants of these expectations. As the central agent of reinforcement in the classroom, the teacher's role in developing the more advantageous control belief, i.e., Internal PLC, is crucial.

ACKNOWLEDGMENT

I acknowledge with gratitude the invaluable assistance of my dissertation committee toward the completion of this study. Special thanks are due my committee chairman, Dr. Augustine Garcia, for his patient and meticulous guidance. I also wish to express my appreciation for the cooperation of certain Stockton Unified School District personnel, namely: Ms. Joanne Miller, Coordinator of the Research and Evaluation Office; and the principals of the nine schools involved in this investigation, Mr. Keith Wong, Mr. Marshall Dunlap, Mr. Bill Shima, Mr. Bruce Dean, Mr. Joe Irving, Mr. Don Ratto, Mrs. Priscilla Lopez, Mrs. Dorothy Astorga, and Mr. Bill Logsdon. Finally, I am very grateful to Mr. Manny Montaño, Director of the Multilingual-Multicultural Education Center, Stockton Unified School District, for his moral and practical support.

TABLE OF CONTENTS

TABLE OF CONTENTS
(continued)

LIST OF TABLES

LIST OF TABLES
(continued)

LIST OF FIGURES

Chapter 1

NATURE AND SCOPE OF THE PROBLEM

INTRODUCTION

One of the continuing concerns in educational spheres is the disparity of educational achievement among students. Over the years there have been exhaustive studies investigating factors that influence variance in school achievement. The current clamor for equality of educational opportunity indicates that educators still lack the answers toward fulfilling equality of school achievement. The lower-class and ethnic minority children have consistently been shown to perform more poorly than their middle-class peers.

Underlying the aim of equal educational opportunity is the fundamental question of what the determinants of achievement are. One fact begins to emerge from studies addressed to this basic question, that what may be consequential for academic success for some segments of the population may prove insignificant or even counterproductive for others. The critical concerns seem to be what will work best, for which students, and under what conditions. The well known Equal Educational Opportunity Report (EEOR) and the series of reanalyses which it generated shed some light on this problem. They revealed that among lower socioeconomic

minority students, it is family background and certain personality dispositions that are highly predictive of achievement, not school characteristics and resources.[1] The personality disposition that Coleman and his associates found to be a highly powerful predictor of school success is "control of environment." It was found to be twice as powerful as any other factor in predicting school achievement.

Control of environment has also been variously called causal ascription, reinforcement expectation, intellectual achievement responsibility, and perceived locus of control. The last term, perceived locus of control (PLC) has been adopted for this study. PLC is a personality construct introduced by Rotter in his social learning theory. Rotter posits that the probability of the occurrence of a particular behavior depends not only upon the value placed by the individual on the results of the behavior, but also upon his belief that he can control these results.[2] An individual is labeled "Internal" if he attributes the consequences of his behavior to his own efforts and characteristics. He is considered "External" if he ascribes responsibility to forces other than himself. An Internal then, perceives a

---

[1]James Coleman, et al., Equality of Educational Opportunity (Washington, D. C.: Superintendent of Public Documents, 1966), pp. 319-320.

[2]Julian B. Rotter, Social Learning and Clinical Psychology (New York: Prentice Hall, 1954), p. 1.

contingency between his behavior and the results of that behavior. The External attributes the consequences to luck, chance, or to other people, things, or circumstances.

Since EEOR, numerous research studies on PLC have been launched. Taken all together, they have further established the importance of control orientation as a learning variable. The purpose of this study was to investigate the PLC-achievement relationship among 154 third, fourth, fifth, and sixth grade Filipino Americans in nine schools in the Stockton Unified School District, California. Three demographic variables were scrutinized for possible interaction effects with PLC on achievement, namely gender, socioeconomic level (SEL) and generational status (GS). The study also attempted to study age, GS, SEL, and gender as potential PLC correlates. To the researcher's knowledge, this is the first locus of control study using Filipino-American subjects and the first to be conducted in Stockton Unified School District.

HISTORICAL BACKGROUND

Equality of educational opportunity is a vital part of American philosophy today. It has been since this country first waged its battle to establish public responsibility for the education of its children. Several pathbreaking social and political changes within this century have produced significant changes in the perception of what equality of educational opportunity is. In the first few decades,

the concept of universal equalization propounded by Horace Mann gained ground to supplant the earlier narrow concept of the educability of only the elite groups.[3] Having gained public support of education, society now turned to equalizing school facilities and provisions. By mid-century, the landmark decision of the Supreme Court in the Brown vs. Board of Education case in Topeka, Kansas, legally determined that in our society "separate but equal" schools were intrinsically unequal. Ten years later, the Civil Rights Act was enacted, administratively interpreting equal educational opportunity in terms of desegregation.[4]

Compensatory education came at the heels of the adversary period of the 60's as a complementary strategy in equalizing educational opportunity. It grew out of the recognition that learners did not begin at the same point and so may not have comparable opportunities when provided equal or similar educational experiences. Laudable as the concept was, most of the programs were nevertheless found ineffective. Many reasons were proposed, the most prevalant of which was the damaging effect of such negative labels as "disadvantaged" and "culturally deprived."[5] What may

---

[3]Henry Steele Commager, "The School as a Surrogate Conscience," Readings in Education 76/77 (Guilford, Connecticut: Duskin Publishing Group, Inc., 1976), p. 8.

[4]Frederick Mosteller and D. Moynihan, "A Path Breaking Report," Equality of Educational Opportunity (New York: Random House, 1972), pp. 29-30.

[5]Allan C. Ornstein, "An Overview of the Disadvantaged: 1900-1970," Rethinking Educational Opportunity, Kappan and Walberg, eds. (Berkeley: McCutchan Publishing Co., 1974), pp. 7-8.

have also hindered success was the fact that educational input (quantity and quality of resources) was still the major concern. Emphasis on egalitarian thought was to shift from equal access to resources to equal outcomes with the publication of the EEOR.

Part of the original intent of the EEOR survey was to ascertain whether or not schools offered equal educational opportunity in terms of a number of criteria of educational quality. Among the findings was that the widely assumed inequality of access to facilities and resources did not exist. It was not the quantity nor the quality of school input that had bearing on achievement. It was family background that was of great importance to school achievement and this relationship did not diminish over the years. In the light of these findings, Coleman asserted: "When schools do not compensate for the variations in the background experiences of their pupils, they are failing to provide equal educational opportunity."[6]

Coleman believed, then, that the function of the school was to make academic achievement independent of the social background of the pupils if equality of output was to be gained. In effect he had reinterpreted equality of educational opportunity, using educational achievement as the criterion. This reinterpretation had important policy implications for the schools.

---

[6]Coleman, loc. cit.

> Before the Equal Educational Opportunity report, equality of educational opportunity was measured in terms of school input, e.g., quantity and quality of school facilities, staff, and programs. With the EEOR, equal educational opportunity was measured in terms of school output, or measures of academic achievement.[7]

The EEOR's criterion of quality of achievement raises the age-old conflict between liberty and equality. In regard to this, Edmund Gordon aptly states:

> Equal educational opportunity demands that where what the child brings to school is unequal, what the school puts in must be unequal and individualized to insure that what the school produces is at least equal at the basic levels of achievement. Equal educational opportunity in a democracy requires parity of achievement at a baseline corresponding to the level required for social satisfaction and democratic participation. It also demands freedom to vary with respect to achievement ceilings. It is a reconciliation of these conflicting requirements that equality of educational opportunity is tested.[8]

The EEOR uncovered the largely unknown relationship among family, school, and community influences on the one hand and educational outcomes on the other. It directed awareness to a learning variable of significance: the attitude concerning control of environment.

THE PROBLEM

Since Rotter's introduction of the reinforcement

---

[7]Mosteller, loc. cit.

[8]Edmund W. Gordon, "Toward Defining Equality of Educational Opportunity," On Equality of Educational Opportunity, Mosteller and Moynihan, eds. (New York: Random House, 1972), p. 433.

expectancy construct (PLC) in 1954, researchers of diverse persuasions have focused on this personality attribute. Given stimulus by the EEOR findings, PLC studies continue to expand in different directions. There seems to be concurrence in the findings that: (a) a great majority of lower socioeconomic students score as Externals in control orientation, and (b) achievement is consistently linked with Internality.[9]

Empirical evidence therefore strongly points to the magnitude of influence exerted by perceived locus of control with respect to learning. Although research on PLC abounds, an ERIC search failed to yield studies using Filipino-American subjects. It is highly unlikely that students categorized as "Orientals" in the EEOR included Filipino Americans since they were almost non-existent in American schools during the EEO survey. This lack was understandable in view of the fact that, until the passage of the Reformed Immigration law in 1965, the quota system adopted by the National Immigration office restricted Filipino immigration to a few thousand yearly and these had been mostly male adults.[10] In consequence, there were very few students of this ethnic group in school. The elimination of the immigration restrictions resulted in a large

---

[9]James A. Vasquez, "Locus of Control, Social Class, and Learning," (Los Angeles: National Dissemination and Assessment Center, UCLA, 1978), p. 19.

[10]Alfredo Muñoz, The Filipinos in America (Los Angeles: Mountainview Press, Inc., 1971), p. 82.

influx of Filipino immigrants. The number grew from 19,300 in 1960 to 257,500 by 1976.[11] It is estimated that the present number has exceeded half a million, more than two-thirds of whom chose to settle in California, which, excluding Hawaii, is the state closest to the Philippines in distance and climatic conditions.[12]

A natural consequence of increased immigration is a sizeable ethnic population of which one-third could easily be school-aged children and adolescents. Stockton is among the California cities with the highest concentration of Filipino Americans. The Stockton Unified School District (SUSD) reported a 4.5% Filipino American population in 1977, or 1,174 out of the total of 25,987 students.[13] Studies concerning this ethnic group might help provide insights into their particular learning needs.

Statement of the Problem

If as the literature suggests, locus of control in non-white minority and low socio-economic groups is related to achievement, it is logical to assume that a similar relationship exists between these two factors among Filipino-American students of low socioeconomic status. Essentially,

---

[11] U.S. Bureau of Census, Statistical Abstract of the United States: 1977 (98th Edition; Washington, D.C., 1977), p. 83.

[12] Muñoz, loc. cit.

[13] Research and Evaluation Office, Stockton Unified School District, Racial and Ethnic Report, October 1977.

the primary questions this investigation sought to answer were:

1. Is perceived locus of control among Filipino-American students related to the achievement scores in reading and mathematics?

2. Does the nature of the PLC-achievement relationship vary with socioeconomic level, gender, and generational status?

3. Is there a relationship between PLC and the demographic variables of gender, socioeconomic level, age and generational status?

Data Collection

The instrument used to assess PLC in this study was the Children's Nowicki-Strickland Internal-External Scale (CNS-IE). The Metropolitan Achievement Test (MAT) results for May, 1978, provided the data for achievement in reading and mathematics. The PLC scale was administered between the middle of October and the second week of November. Presumably, the five month gap between the two tests would not detract from the validity of the study since achievement scores are generally considered to be rather stable year by year. Socioeconomic levels were determined through the use of the Index of Status Characteristics by Warner, Meeker, and Eels.

The subjects of this study were 154 Filipino-American students in the third, fourth, fifth, and sixth grades. These children were drawn from nine elementary schools in the

SUSD, representing varied socioeconomic status and containing the highest percentage of Filipino-American population.

Permission was obtained from the SUSD Research and Evaluation Office to administer the PLC measure and to obtain the subjects' reading and mathematics scores. Parents were contacted through letters to secure the following:

1. Permission for the researcher to obtain the children's MAT scores in reading and mathematics from the SUSD Research and Evaluation Office;

2. Permission to administer the PLC scale; and

3. Information on parents' occupation and children's generational status.

LIMITATIONS AND DELIMITATIONS

Elementary grade children were preferred to middle and high school students, not only for reasons of accessibility but also because computer print-outs indicated that a greater number of subjects meeting the desired characteristics would be available in the elementary schools than in the higher grades. Furthermore, although researchers generally agree that locus of control is developmental, they also attest that this attitude is reasonably stable by the time children are in the elementary grades. First and second graders were excluded from the study to ensure adequate performance on the PLC scale, which is a pencil-and-paper test and requires reading ability beyond these beginning grade levels.

To obviate the possible obscuring effects of language deficiency, potential subjects listed as limited English speakers in the Basic Inventory of Natural Language data sheets, were excluded from the study. The Intelligence factor was not considered for the reason that it may have a narrowing or eliminating effect on achievement since, as Gordon suggests, I.Q. is greatly influenced by social and school experience.[14] Controlling for I.Q. could, in effect, be controlling for previous education or for achievement itself.

DEFINITION OF TERMS

Perceived Locus of Control

Julian Rotter defines control expectancy as "the self versus environmental responsibility for outcomes."[15] In other words, it is the individual's perception of the cause of reinforcements for his behavior or of lack of reinforcements. It is his belief in the degree of his personal efficacy in dealing with the environment. In this study the individual's PLC is expressed as "Internal", "External", or "Medium", depending on the position of his score in relation to the group mean score on the Nowicki-Strickland Locus of Control Scale for Children.

---

[14] Gordon, op. cit., pp. 428-429.

[15] Julian B. Rotter, Social Learning and Clinical Psychology (New York: Prentice Hall, 1954), p. 1.

External Locus of Control (ELC)

Rotter's definition is:

> When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action...then it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of forces surrounding him. When the event is interpreted this way by an individual, we have labeled his belief as External Control.[16]

Subjects in this study were categorized as Externals if their scores in the PLC scale fell within the 19 to 27 range. (The scale has 40 items.)

Internal Locus of Control (ILC)

"If a person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this belief an Internal Control."[17] Subjects in this study were categorized as Internals if their PLC scores fell within the 3 to 15 range.

Medium Locus of Control (MLC)

Subjects whose PLC scores fell within the 16 to 18 range were considered to have Medium Control.

---

[16] Ibid.

[17] Ibid.

Generational Status (GS)

In this study, generational status serves as an acculturation measure. Generational status with regard to ethnicity refers to the degree to which an individual is removed from being native-born by succession of natural descent. The definitionsunder each generational category as specifically applied in this study are given below.

First Generation Filipino American. First generation Filipino-Americans are immigrants to the United States, having been born in the Philippines of Filipino parents.

Second Generation Filipino Americans. This category is applied to a child if one or both parents are first generation Filipino-Americans.

Other Filipino Americans. A child is classified under "Other Filipino Americans" if both parents are second or higher than second-generation Filipino Americans.

Socioeconomic Level (SEL)

An individual's socioeconomic level is his position in the socioeconomic class system in the community in which he resides. In this study, the SEL was determined by the score on the Index of Status Characteristics scale by Warner, Meeker, and Eels. This scale considers the basic criteria of occupation, type of dwelling, and type of dwelling area. Classifications were based on the following score ranges suggested by the authors.

High SEL - scores from 12 to 22

Middle SEL - scores from 23 to 51

Low SEL - scores from 52 to 81[18]

SIGNIFICANCE OF THE STUDY

Research events have made it apparent that it is not enough to settle for equal facilities to achieve educational equality since this practice has too often been unsuccessful. The salient influence emerging from research data is that achievement equality is more likely to evolve if schools explicitly address themselves to personality and social development rather than focusing solely upon academic growth. Valuable inroads have been made by previous researchers on locus of control, a personality characteristic that shows promise as on achievement predictor. This study pursued and expanded on the valuable information offered by research in this area using Filipino-American subjects. Since there have not been any previous studies concerning the relationship of PLC to achievement among this ethnic group, results of this investigation could provide useful insights into their personality attributes as a groundwork for recommendations for improving their educational opportunities. This study might also encourage similar research efforts on other minority groups in SUSD which would be worthwhile

---

[18]Lloyd Warner et al., Social Class in America (New York: Harper and Row Publishers, 1960), p. 127.

considering the fact that the student population consists of 55% ethnic minorities.[19]

While factors of socioeconomic level, age, and gender have often been considered as PLC correlates, studies including the variable of generational status or the similar dimension of degree of acculturation have been conspicuously infrequent. The additional information this study could contribute in this respect may therefore be useful in adding insight regarding antecedents of PLC. Additionally, while findings on the relationship of PLC to SEL and age have been generally consistent, results on the gender variable have been equivocal. Some researchers speculate that these conflicting findings may be attributable to differing sex roles in various ethnic and culture groups or to changing sex roles within ethnic or culture groups. If this is so, this study offers understanding of sex roles in the Filipino culture. Hopefully, the study could also shed some light on the learning needs of the Filipino-American segment of the school population.

REMAINDER OF THE STUDY

Following this introductory chapter, the remainder of this paper is organized in the following manner: Chapter

---

[19]Research and Evaluation Office, SUSD, loc. cit.

2 dwells on a review of related literature containing the subtopics of: (a) theoretical background of the locus of control construct, (b) PLC and achievement, (c) PLC and socioeconomic level, (d) PLC and gender, and (e) Measurement of PLC. Chapter 3 describes procedures used in the study. Chapter 4 reports the findings. Chapter 5 presents conclusions and implications derived from the results of the investigation.

Chapter 2

REVIEW OF RELATED LITERATURE

In the last two decades, the personality variable perceived locus of control (PLC) has been of considerable theoretical and applied interest, especially with reference to the disadvantaged and to ethnic minority groups. An extensive body of research on this dimension has been accomplished. Several reviews of the research literature immediately relevant to PLC have appeared, notably those by Rotter (1966), Lefcourt (1966, 1972), Joe (1971), and Reynolds (1976). To exemplify the extent of research in this field, the bibliographic search by Throop and MacDonald in 1971 yielded 13 tests and 399 articles.[1]

Some areas of major concern to PLC investigators appear to be: (1) PLC correlates of the demographic dimension (e.g., socioeconomic status, age, gender, ethnicity); (2) PLC correlates of situational and behavioral dimensions (e.g., school achievement, conformity, social action taking,

---

[1]Warren Throop and A. P. MacDonald, "Internal-External Locus of Control: A Bibliography," Psychological Reports, XXVIII (May, 1971), 175-192.

level of aspiration); (3) intervention strategies; and (4) familial and social antecedents.

This chapter is restricted primarily to discussions that have direct bearing on this study, namely:

1. PLC: Theoretical Background
2. PLC and Achievement
3. PLC, Ethnicity, and SEL
4. PLC and Gender
5. Measurements of PLC

These topics have relevant affinity with the purpose of this investigation which pertains to the relationship of PLC to achievement and to potential PLC correlates: SEL, age, gender, and generational status. There appears to be a dearth of studies relating PLC to generational status, thus no review on this factor was included here. Instead, there is a section on ethnicity, which like generational status, has cultural connotations.

PERCEIVED LOCUS OF CONTROL: THEORETICAL BACKGROUND

Perceived locus of control refers to the degree to which an individual perceives the events in his life as being the outcome of his own actions or personal dispositions (Internal Control) versus the degree to which he feels these events to be determined by forces outside of himself and therefore beyond his control (External Control). The PLC construct is an integral part of Rotter's social learning

theory. Rotter postulates that the potentiality for the occurrence of any behavior is determined, not only by the nature or importance of the goal, but also by the person's expectancy that these goals will be achieved as a consequence of his behavior.[2] His basic formula for behavior prediction includes three elements: 1) reinforcement value; 2) situational determinants; and 3) reinforcement (goal) expectancy. The latter has come to be known as "locus of control" or "perceived locus of control". The implication is that an individual, even when possessing a high degree of preference for a goal, may not seek it unless he believes that goal is attainable as a direct consequence of a specific behavior on his part. The probability, then, of the occurrence of behavior toward a desired reinforcement increases with the individual's belief in his own efficacy in attaining the goal. Lefcourt points out that, since PLC is only one element in Rotter's basic formula, "When research is presented, focusing on locus of control as a sole predictor of a given set of criteria, it necessarily represents a limited approach to the prediction of these criteria such that high magnitude relationship should not be anticipated."[3]

---

[2]Julian B. Rotter, Social Learning and Clinical Psychology (New Jersey: Prentice Hall, Inc., 1954), p. 102.

[3]Herbert M. Lefcourt, "Recent Developments in the Study of Locus of Control," Progress in Experimental Personality Research, VI (New York: Academic Press, 1972), p. 2.

Research with various PLC instruments suggests that the individual becomes Internal with age.[4] Rotter describes this construct as a generalized tendency developed through a history of validation or non-validation of experience.

> Expectancies generalize from a specific situation to a series of situations which are perceived as similar. Consequently, a generalized expectancy for a class of related events has functional properties and makes up one of the important classes of variables in personality description.[5]

Control expectancy therefore is an eventuality of the individual's history of reinforcements, a generalized attitude regarding the nature of causal relationship between his own behavior and its consequences. This attitude affects a wide variety of behavioral choices in a broad band of life situations.

A number of more recent studies, on the other hand, have suggested that control orientation is a function of situational or specific expectancies as opposed to a generalized expectancy as delineated by Rotter. Milgram asserts that absence of correlation in his study stems from the fact that items in the Bialer Scale contain various elements that were conceptually diverse.[6] Gurin's analysis

---

[4]Stephen Nowicki, Jr. and B. R. Strickland, "A Locus of Control Scale for Children," Journal of Counseling and Clinical Psychology, XL (September, 1973), 149.

[5]Julian B. Rotter, "Generalized Expectancies for Internal Versus External Control of Reinforcement," Psychological Monographs; General and Applied, LXXX (1966), 2.

[6]Norman A. Milgram, "Locus of Control in Negro and White Children at Four Age Levels," Psychological Reports, XXIX (June, 1971), 463-464.

of a number of PLC questionnaires disclosed two types of expectations: one on the ideological level and another on the personal level. He found items on the personal level to be more systematically related to achievement.[7] Rotter, however, did maintain that responses in academic situations may be guided by expectancies of greater specificity than those measured by Internal-External scales measuring generalized beliefs.[8] Given these contradictions, it appears that conclusions regarding the generalized versus specific nature of PLC are not clear-cut.

A different perspective with regard to PLC is offered by Weiner, who demonstrated that stability attributes rather than I-E control primarily influence behavior expectations. For instance, persistence in the face of failure was found to be greater when the failure was attributed to luck (unstable-external) or lack of effort (unstable-internal) and less when attributed to ability (stable-internal) and task difficulty (stable-external).[9] Weiner's contention that stability attributes may have a confounding effect on PLC

---

[7]P. Gurin, G. Gurin, R. Lao, and M. Beatti, "Internal-External Control of the Motivational Dynamics of Negro Youth," Journal of Social Issues, XXV (Summer, 1969), 29-53.

[8]Rotter, op. cit., p. 27.

[9]Bernard Weiner, H. Heckhausen, W. Mayer, and R. Cook, "Casual Ascriptions and Achievement Behavior: A Conceptual Analysis of Effort and Reanalysis of Locus of Control," Journal of Personality and Social Psychology, XXI (February, 1972), 247.

research bears further exploration. In a sense, this notion seems to be a question of specific versus generalized points of view.

Rotter recognized parallel conceptual underpinnings between PLC and several other personality and psychological concepts.[10] He mentions the resemblance to Veblin's belief in luck which Veblin maintains is characterized by less productivity and general passivity. Rotter likewise perceived the relation of PLC to anomie and alienation (Durkheim and Seeman) in-as-much as the alienated individual, like the External individual, is believed to feel he is at the mercy of forces too vague or strong for him to control. A link is also seen with White's competence and Angyal's autonomy concepts, both of which are defined in terms of motivation or drive to master the environment. Another similarity was seen with McClelland's need for achievement construct, suggesting that people who are high on need for achievement are probably also high on Internality. Rotter claims there is a close relationship between PLC and the field dependence variable (Witkins, et al.) and inner versus outer-directedness (Riesman).

Rotter, however, adds that the relationships are more apparent than logical. For instance, Witkin's and Riesman's conceptions are based on the degree to which

---

[10]Rotter, op. cit., pp. 3-4.

people are controlled by internal goals versus the degree to which they are controlled by external forces. PLC, on the other hand, is concerned with what the individual believes to be the actual source of the reinforcement. A causal relationship between the concepts may be logically deduced; i.e., a consistent belief in a particular control expectancy can essentially result in reliance on internal or external forces for behavior cues.

Bartel sharply distinguishes between PLC and drives toward autonomy and competence. She explains:

> The construct of locus of control is an expectancy variable rather than a motivational one; and hence is conceptually closer to formulation of anomie and alienation, rather than to the concepts of drive to autonomy and competence. It is a particular set of expectancy rather than a drive or a trait.[11]

Further, Bartel differentiates between PLC and anomie: "Rotter's construct focuses on believing one can obtain what one desires. Durkheim's concept figures on desiring what one can legitimately obtain." In its original conception, then, PLC is a generalized set of expectancies either in the direction of externality or internality resulting from previous reinforcement experiences. It is a psychosocial dimension distinguishable from such personality variables as need for achievement, autonomy, competence, anomie and alienation, field dependence-independence, and inner-outer directedness.

---

[11] Nettie R. Bartel, "Locus of Control and Achievement in Middle Class and Lower Class Children," (unpublished Ph.D. dissertation, Indiana University, 1968), p. 11.

PLC AND ACHIEVEMENT

Empirical studies have consistently found minority groups to show poorer academic achievement than their peers in the majority ethnic group. Coleman's massive study of the educational status of minority groups revealed that the American Indian, Puerto Rican, Mexican American, and Black American students were lower in educational achievement than were Anglos and the Oriental Americans. The most pronounced deficiencies noted were in reading comprehension and verbal ability.[12]

An extensive review by Vasquez of reports documenting the educational status of Mexican Americans gave evidence that this group consistently achieved lower than average in academic performance and that there was a 40 percent high school drop-out rate.[13] At the local level, Jennings and Chambers made a study of achievement patterns of eight linguistically distinct sets of children in Stockton Unified School District. Results showed that, compared to monolingual English speakers, the Black dialect group, the Spanish first language group, and the Spanish bilinguals scored significantly lower on the CTBS language

---

[12]James S. Coleman, et al., Equality of Educational Opportunity (Washington, D. C.: Superintendent of Public Documents, 1966), p. 21.

[13]James A. Vasquez, "Locus of Control, Social Class and Learning," (unpublished paper, National Dissemination and Assessment Center, UCLA, 1978), p. 4.

arts tests. The Chinese first language speakers, the Tagalog first language speakers, and the Tagalog bilinguals showed no significant difference. Interestingly, the Chinese bilinguals scored significantly higher.[14]

Through the years, there have been exhaustive studies investigating factors that influence variance in school achievement. Some of these factors relate to the characteristics of the children as shaped by their home background (abilities, habits, attitudes, values, language). Others focus on the characteristics of the school (program, facilities, personnel, school environment). One of EEOR's myth-breaking conclusions is that the quantity and quality of school input had little or no bearing on achievement; that it was home environment and the student peers that really counted.[15]

This conclusion however, did not mean that schools were absolved from contributing to learning retardation. The report states:

---

[14]Dewey Chambers and S. Jennings, "The Achievement Patterns of Eight Linguistic Sets of Children in a Pluralistic Community," (Monograph No. 1, Bureau of Research and Field Services, UOP, Stockton, 1975), p. 19.

[15]Marshall Smith, "Equality of Educational Opportunity: The Basic Findings Reconsidered," On Equality of Educational Opportunity (New York: Random House, 1972), 230. (The survey measured twenty-five background characteristics grouped into eight variables. Six of these measured objective characteristics: 1) urbanism of parents and pupils; 2) parent's educational experience; 3) structural integrity of the home; 4) home items; 5) number of reading items; and 6) number of siblings. Two variables assessed subjective conditions of the home: 1) parents' interest in school experience; and 2) parents' desires and expectations of the child's success in school.)

> With some exceptions, notably the Oriental Americans, the average minority pupil scores distinctly lower in these tests at every level than the average white pupil. The minority scores as much as one standard deviation below the majority pupils' scores in the first grade. At the end of the twelfth grade results of tests in the same verbal and non-verbal skills show that in every case, the minority scores are farther below the majority than are the first graders.[16]

As an explanation of the progressive learning decline, Coleman states that the inequality of educational opportunity appeared to stem primarily from home influences, and subsequently from the school's ineffectiveness to free achievement from the impact of the home. A similar increasing achievement decrement among lower class children was reported by Bartel in which she concludes that the clues to poor achievement of the lower class may lie in the school experience itself, rather than in the characteristics that the children bring to school. Her data suggested that "the attitudes, motives and skills which lower-class parents instill in their children are relatively more adequate for enabling children to cope with school tasks than are habits, attitudes and skills that children possess after several years' exposure to the schools."[17] A clear implication is that after receiving students who are differentially equipped in skills, attitudes, language, habits, and values,

---

[16]Coleman, op. cit., p. 12.

[17]Bartel, op. cit., p. 3.

schools do not accommodate these differences through differential treatment in order to lessen the achievement gap.

The assumption citing socio-cultural factors as underlying the low achievement of ethnic minority groups is increasingly receiving criticism. The antecedent-consequence relation involves a complex network of home, social, and school factors. In the EEO survey, the locus of control dimension achieved significance in providing a clue to unequal achievement. Among almost half a million youngsters across the United States, control orientation was found to be more strongly related to school achievement than any other variable, including family background and school variables.[18] Since the EEOR, the PLC construct as a learning variable has evoked wide interest among developmental researchers and classroom interventionists alike. Such reaction is not unexpected since PLC purports to account for low achievement and could provide direction for remediation and for structuring early learning experiences in a way that would enhance the more advantageous control orientation.

Literature on PLC-Achievement research evinces discontinuity of conclusions, although by and large, they confirm the EEOR findings. A study by Guttentag of 980 Black students in the fifth and eighth grade using a combination

---

[18]Coleman, op. cit., pp. 319-320.

of several I-E scales revealed that control expectancies accounted for more than 15 percent of the variance in achievement for these age groups.[19] Crandall, Katkovsky, and Crandall also found significant PLC-achievement relationship among grades 3 to 5 pupils but not among grades 6 to 12.[20] McGhee and Crandall, replicating this earlier study using course grades and achievement scores as dependent variables, found course grades to be more consistently related to control orientation than test scores. The researchers felt this was because subjective elements entered the course grades and PLC has very subjective characteristics.[21] Shaw and Uhl examined the same variables among four groups of second graders: White low SEL (Socioeconomic level); Black low SEL, White Upper-Middle SEL, and Black Upper-Middle SEL. Internal LC scores related positively to reading success only in the two latter groups. The researchers speculated that the reason was that in the upper middle SEL homes, the importance of reading was put

---

[19]Marcia Guttentag and I. Klein, "The Relationship Between Inner Versus Outer Locus of Control and Achievement in Black Middle School Children," Educational and Psychologist Measurement, XXXVI (Winter, 1976), 1107.

[20]Virginia Crandall, W. Katkovsky, and V. Crandall, "Children's Beliefs in their own Control of Reinforcements in Intellectual-Academic Achievement Situations," Child Development, XXXIII (1962), 643-661.

[21]Paul E. McGhee and V. Crandall, "Beliefs in Internal-External Control of Reinforcements and Academic Performance," Child Development, XXXIX (March, 1968), 11-102.

into the child's value system very early in life.[22] Bartel's study showed PLC to be a very good predictor of academic achievement for middle class children but not for lower class children. Lower class children also remain Externals and low achievers from grade to grade. Bartel conjectures that lack of consistency of correlational patterns may be due to distortions resulting from conflicting factors which the lower class child is submitted to. On the one hand, he may in fact be more capable of controlling his environment which leads to Internal control. On the other hand, teacher insistence on conformity or dependence on external services may diminish or negate this relationship.[23] A similar result was disclosed by Shore, Milgram, and Malasky who found PLC achievement relationship in middle-class groups but not in the lower class group.[24]

A number of studies contradict the generally assumed PLC-achievement relationship with reports of trivial or non-existent correlations. Vogel showed that I.Q., SEL, and gender

---

[22]Ralph Shaw and P. Norman, "Relationship Between Locus of Control Scores and Reading Achievement of Black and White Second-Grade Children from Two Socio-Economic Levels," (Paper presented at the Southeastern Psychological Association Convention, New Orleans, LA, February 1969), p. 228.

[23]Bartel, op. cit., p. 74-75.

[24]Norman A. Milgram, M. F. Shore, W. Riedel, and C. Malasky, "Level of Aspiration and Locus of Control in Disadvantaged Children," Psychological Reports (June, 1970), 343-350.

were more powerful predictors of achievement than PLC.[25] Butterfield reported a negative correlation with college students and no correlation with above average, middle-class elementary children.[26] The author argued that PLC may be associated with the subjects' inner-directedness that runs counter to the teacher-pupil congruence in attitude which is usually observed to yield higher scholastic achievement. In other words, where congruence of student and teacher attitudes toward learning is low or absent (as is usually the case in non-conforming average middle class students or below average disadvantaged children) a positive correlation will not obtain. Milgram likewise found the PLC-achievement relationship non-significant among a broad range of Negro and White students. Milgram attributes this to limitations of the PLC measuring instrument.[27]

Given these contradictions and lack of continuity regarding PLC research in relation to achievement, the importance of PLC as a learning variable seems challenged. Very plausible explanations for this lack of stable relationships are presented by some researchers, notably Vogel, Milgram, and Reynolds:

---

[25]Neva Rae Vogel, "An Analysis of the Relationship Between Perceived Locus of Control and the Academic Achievement of Fifth and Sixth Grade Students" (unpublished doctoral dissertation presented to the University of Washington, 1976), p. 47.

[26]E. C. Butterfield, "Locus of Control, Text Anxiety, Reactions to Frustration, and Achievement-Attitudes," Journal of Personality, XXXII (September, 1964), 355-370.

[27]Milgram, loc. cit.

1. There are individuals who are "false Externals," i.e., they use Externality as a defense strategy in order to maintain their feeling of mastery of control;

2. The highly academic situation in schools may require greater specificity of items than in other situations;

3. The contradictions in research findings may be a function of shortcomings of the measuring instruments. (This last item is discussed to a greater extent in the section entitled "Measurements of PLC.")

To recapitulate, the PLC-achievement relationship which appeared so strongly manifest in the EEO Survey has not been consistently supported. Further research appears called for, particularly in the direction of teacher-pupil compatibility in locus of control orientation. Lack of a stable relationship between PLC and achievement has also occasionally been imputed to limitations of instruments measuring PLC.

The interest generated by PLC research has led to explorations on a broad range of behaviors which translate themselves into achievement scores. Several reviews, (Vasquez (1978), Lefcourt (1972), and Reynolds (1926)) attest that, in many achievement-related traits, distinct advantages are on the side of Internals. Positive relationships between Internality and the following traits have been found: (1) self-reliance, (2) achievement motivation, (3) persistence, (4) level of aspiration,

(5) performance under skill conditions, (6) performance under stress, (7) resistance to coercion, (8) reflectiveness, (9) cognitive alertness, (10) delayed gratification, and (11) information seeking and utilization. This evidence conforms with what seems obvious from the common sense point of view. A person who perceives himself in active control of events in his life will be more cautious in his involvements, will pay heed to relevant cues, and will persist in his efforts. On the other hand, those who view themselves as powerless pawns of fate rather than actors in control are likely to exhibit passivity to cues and reinforcements and greater susceptibility to external influence.

Another interesting feature of achievement-PLC patterns concerns the nature of the relationship. A finding in Vogel's study of 673 fifth and sixth graders revealed a curvilinear effect, with higher achievement scores clustering in the middle range rather than at the Internal end. This recalls Rotter's contention that, like the ego-control construct, persons at the extreme ends of the continuum may be more maladjusted than those in the middle range.[28] Certainly from a more realistic viewpoint one would reject total ascription of responsibility for the events in one's life to himself but would assign part of the responsibility to external, circumstantial factors.

---

[28]Vogel, loc. cit.

PLC, ETHNICITY, AND SOCIOECONOMIC LEVEL

Quite often, ethnic minority groups featured in research activities also have lower socioeconomic status. It would, therefore, be difficult to cope with ethnicity and SEL separately. They are discussed jointly in this section. Even a cursory study of PLC literature reveals that many social scientists and researchers believe that groups which are in social positions of minimal power tend to score higher in the External control dimension. The following excerpt from Lefcourt's conclusions in his review reflects this opinion.

> Within the racial grouping, class interacts so that the double handicap of lower class and "lower caste" seems to produce persons with the highest expectancy of external control. Perhaps the apathy and what is described as lower class lack of motivation to achieve may be explained as a result of disbelief that effort pays off. In other words, the "oppressed" groups can be described as analogous to Mowrer's rats whose "fear of fear" led to nonsurvival behavior.[29]

To press his point, Lefcourt cites Bettleheim's study of inmates in Nazi concentration camps, who, because of immensely decreased opportunities, ceased to be active and responsible "subjects" and became passive, irresponsible and child-like "objects". The inverse situation might be inferred. A

---

[29]Herbert M. Lefcourt, "Internal Versus External Control of Reinforcement: A Review," Psychological Bulletin, LXV (April, 1966), 212.

child of the higher income family whose needs are fulfilled can easily assume that the environment will continue to be responsive if he acts appropriately.

A number of investigations have shown that PLC can be inferred from ethnicity. (It must be pointed out that ethnicity refers to familial and cultural correlates rather than to race per se.) Battle and Rotter's study using the Bialer Picture Test showed lower class Negroes to be significantly more External than lower class whites or middle class Negroes and Whites.[30] Lefcourt and Ladwig successfully predicted higher External control for Negro than White prisoners on six different measures of I-E control. Most of the subjects were from low SEL backgrounds.[31] Graves and Jessor's study of three ethnic groups showed Whites to be least Externally-oriented. The authors felt that ethnicity, more than economic factors, was the important source of variation after other variables were controlled.[32]

---

[30]Esther S. Battle and J. B. Rotter, "Children's Feelings of Personal Control as Related to Social Class and Ethnic Groups," Journal of Personality, XXXI (December, 1963), 482-490.

[31]Herbert M. Lefcourt and G. W. Ladwig, "The American Negro: A Problem in Expectancies," Journal of Personality and Social Psychology, I (August, 1965), 377-380.

[32]T. D. Graves, "Time Perspective and the Deferred Gratification Pattern in a Tri-Ethnic Community," (Research Report No. 5, Tri-Ethnic Research Project, University of Colorado, 1961).

Cultural and family values have been found to account for control expectancies. A study by Strodbeck with 24 Jewish and 24 Italian families revealed Jews of the middle and upper class to be more mastery-believing than lower-class Italians. The scores on the Mastery Scale (very similar to control scores) related significantly to family beliefs that the world is orderly and amenable to rational control, and therefore individuals can and should shape their own destinies.[33] A similar study involved Chinese, Chinese-American, and Anglo-American high school students. The researchers Hsieh, Shybut, and Lotsof predicted that the Chinese students, and to a lesser degree, Chinese Americans, would hold more external tendencies having come from a culture that viewed life as relatively fixed and which emphasized status quo; and that Anglo Americans whose culture orientation emphasized that status is achieved through one's effort would come out more Internal. The expectations were obtained even when groups were controlled for SEL.[34]

Empirical data, however, is also available pointing to socio-economic level as the significant PLC-influencing variable. Milgram, Shore, Riedel, and Malasky (1970) compared distinctly disadvantaged lower class and distinctly

---

[33] F. L. Strodbeck, "Family Interaction, Values, and Achievement," Talent and Society (New York: Van Nostrand, 1958),

[34] J. T. Hsieh, J. Shybut, and E. J. Lotsof, "Internal versus External Control and Ethnic Group Membership," Journal of Counseling and Clinical Psychology, XXXIII (May, 1969), 122-124.

advantaged middle-class first grade and kindergarten children and found results that supported the expected social class difference in PLC between the two ethnic groups when SEL was controlled.[35] Studies by Franklin[36] and Gruen and Ottinger found similar results.[37] Bartel's results indicated that the White middle-class children became progressively more Internal from grades 1 to 6, while the lower class children remained External.[38] A very substantial predictive value for PLC was found by Farley, et al. in the factors of income and need for approval, but not in field dependence.[39] Further evidence of the PLC-SEL relationship is provided by Shaw and Uhl, whose data showed that lower class Black and White students had significantly higher External scores than upper class Blacks and Whites.[40] Similarly, researchers Stephens

---

[35]Milgram, loc. cit.

[36]R. D. Franklin, "Youth's Expectancies About Internal Versus External Control of Reinforcement Related to the N Variable," (Unpublished doctoral dissertation, Purdue University, 1963).

[37]Gerald E. Gruen and D. E. Ottinger, "Skill and Chance Orientations as Determinators of Problem Solving Behavior in Lower and Middle Class Children," Psychological Reports, XXIV (December, 1969), 207-214.

[38]Bartel, op. cit., pp. 72-73.

[39]Frank H. Farley, et al., "Predicting Locus of Control on Black and White College Students," Journal of Black Studies, VI (March, 1976), 229-304.

[40]Shaw and Uhl, loc. cit.

and Delys found that PLC consistently related to SEL.[41]

Two studies on Mexican Americans indicate that ethnicity is less strongly correlated to PLC than SEL. Garza and Ames showed that Mexican American subjects scored less External than Anglo Americans when SEL was controlled.[42] Along the same line, Stone and Ruiz's comparison of Mexican Americans and Anglo Americans in the eleventh grade found that regardless of race, lower SEL students demonstrated less Internal control, lower GPA and lower aspiration than higher SES students.[43]

It would seem from all this evidence that SEL is related to PLC expectancies, lower SEL being associated with Externality. A clear-cut conclusion with regard to ethnicity, however, is not seen and may need further validation with different ethnic groups. The PLC-ethnicity relationship may be a question not only of whether one is a member of the minority group or not, but also of which

---

[41]Mark Stephens and P. Delys, "Subcultural Determinants of Locus of Control Development: A Locus of Control Measure for Pre-School-Age Children: Model, Method, Validity," (Paper presented at Mid-Western Psychological Association Convention, Detroit, Michigan, May, 1978), p. 1-21.

[42]Raymond Garza and Russell E. Ames, Jr., "A Comparison of Anglo and Mexican College Students on Locus of Control," Journal of Consulting and Clinical Psychology, XLII (December, 1974), p. 919.

[43]Paula C. Stone and Rene A. Ruiz, "Race and Class as Differential Determinants of Underachievement and Underaspiration among Mexican Americans," (A paper presented to the Annual Convention of the American Psychological Association, September, 1971), p. 12.

particular ethnic group. Differential control orientation, if at all influenced by ethnicity, could be a function of differential cultural beliefs and values.

PLC AND GENDER

Many studies have scrutinized sex differences in the prediction of achievement through control tendencies. There is lack of agreement in findings, although girls have generally been found to tend toward the Internal Control direction. Crandall, Katkovsky and Crandall found girls to be more prone to assign responsibility to themselves.[44] Cervantes' investigation showed females to be more Internal, even those who scored low in self-image.[45] A number of studies showed sex differences in achievement-PLC relationship with results indicating that girls' control orientation is less useful in predicting achievement behavior than the boys'. Studies by McGhee and Crandall,[46] and by Crandall, Katkovsky and Crandall,[47] found positive relationships for boys, with girls failing to predict. It has been surmised that varying females roles in different cultures and their

---

[44]Crandall, et al., loc. cit.

[45]Robert Cervantes, "Self-Concept, Locus of Control and Achievement in Mexican American Pupils," (a paper presented at the Third Annual Conference on Bilingual-Bicultural Education, San Francisco, California, February, 1976).

[46]McGhee and Crandall, loc. cit.

[47]Crandall, et al., loc. cit.

changing roles within cultures account for the contradictory findings on this variable.

MEASUREMENT OF PLC

Throop and MacDonald listed 13 scales for measuring the locus of control dimension. Rotter's Internal-External Scale is probably the most widely used for adults. The four children's PLC scales that are often mentioned are listed below.

1. Bailer's Locus of Control Scale for Children (1961; LCSC) is a 23-item scale orally administered, acquiescent type scale. The Gozali and Bialer Scale (1968) which was constructed later reverses the content of the LCSC so that the two tests can check one another against vitiation of scores by response set.

2. Battle and Rotter's Children's Picture Test of Internal-External Control (1963) is a 6-item projective test orally and individually administered.

3. The Intellectual Achievement Responsibility Questionnaire (1965; IARQ) by Crandall, Katkovsky, and Crandall is the only I-E test which is aimed at the narrower target of academic achievement. It is a 34-item forced-choice questionnaire administered orally or in writing.

4. The Children's Nowicki and Strickland Internal-External Scale (1973; CNS-IE) is a 40-item scale of the acquiescent type administered orally or in writing.

PLC research data have generally sustained the discriminatory and construct validity of the various locus of control scales. However, instability of some research findings has been imputed to alleged short-comings of the scales used. Milgram attributed the lack of correlations in his study to the Bialer Scale which he contended contained elements that were diverse conceptually and operationally.[48] After an item analysis of the scale he found these different elements: (1) items involving post-hoc attribution of responsibility for desired and undesired consequences; (2) items implying the ability a-priori to avert undesired consequences or effect desired ones; (3) items involving mastery over impersonal and interpersonal events; and (4) items identifying external events as impersonal luck or chance or personal. The non-correlation of these items, Milgram states results in total scores that mean different things to different respondents.

Another source of difficulty, as pointed out by Bartel, is the variety of meanings ascribed to "External forces". The IARQ refers to External control as those characteristics of teachers, parents, and peers, which are quite tangible and identifiable and therefore may not be entirely beyond

---

[48]Milgram, op. cit., p. 463.

the respondent's control.[49] This conceptualization differs from Rotter's definition of External forces as arbitrary and intangible, hence beyond the respondent's influence. It is probably for this reason, aside from its focus on school achievement, that the IARQ consistently yields greater correlation with achievement. The IARQ has also been criticized for being vitiated by social desirability factors, for having a strong pull toward the Internal response, and for being inconsistently related to social class.

Gurin's factor analysis of several Rotter-type questionnaires revealed two distinct types of beliefs: the ideological (referring to generalized social beliefs) and the personal (referring to the respondent's own life, and stated in the first person). This may be what Milgram was referring to as "impersonal" versus "interpersonal." Gurin asserts that it is items on the personal level that operate significantly in academic performance.[50] Scott attempted to explicate the implications of Gurin's findings on 32 Black Harvard and Radcliffe undergraduates and arrived at the conclusion that individuals have different expectancies for different contextual situations and for

---

[49]Bartel, op. cit., p. 17.

[50]Gurin et al., loc. cit.

different roles. The Internal Control, then, is a function of the individuals enacted role and context rather than a generalized belief.[51] It is probably the personalized quality of Coleman's test that gave it discriminatory power in spite of the fact that it consisted only of three items, namely:

1. People like me don't have much of a chance to be successful in life;

2. Good luck is more important than hard work for success;

3. Everytime I try to get ahead, something or somebody stops me.

In sum, some limitations of PLC instruments include problems in the following aspects: (1) vitiation by the social desirability variable; (2) ideological versus personal level; (3) differences among tests of elements tested both on the conceptual and operational level; (4) generalized versus specific level.

The trend toward specificity departs from the original conception of locus of control in the tradition of Rotter who perceived this construct as a generalized tendency. Reynolds points out the problems that could evolve from the "dissipation of generalized LC measures into myriad more specific variables." (a) Specificity could easily be

---

[51]Scott, op. cit., p. 279.

carried to absurd limits; (b) the new measure may no longer be appropriately labeled I-E Control.[52] In view of these conflicting opinions, it is long past the time for a thorough and systematic re-evaluation and revalidation of existing I-E scales.

The children's Nowicki-Strickland I-E scale measures generalized rather than specific beliefs. Published in 1973, the test improves on observed shortcomings of earlier scales. Most of the items require responses on the personal level. It does not have the format fault of the Bialer Scale in which items are keyed in one direction, thereby inviting a response set. It avoided the forced choice format of the IAQR which is difficult for younger and duller subjects. Many researchers may also find the convenience by which it can be administered to large groups as an advantage.

SUMMARY

Perceived locus of control is an integral part of Rotter's basic formula for behavior prediction which includes three elements: 1) reinforcement value; 2) situational determinants; and 3) reinforcement expectancy. PLC refers to the individual's perception of the source of control of behavior reinforcements. Internal individuals see

---

[52]Carl Reynolds, "Correlational Findings, Educational Implications, and Criticisms of Locus of Control Research," Journal of Black Studies, Vol. 6, No. 3 (March, 1976), 243.

reinforcements as contingent on their own behavior and personality dispositions and External individuals perceive reinforcements as under the control of forces outside of themselves. Rotter describes the nature of PLC as a generalized tendency developed through the individual's history of reinforcement experiences and as progressing in an Internal direction with age. Studies relating PLC to achievement-related behavior have supported the characterization of the Internal person as one who is more active, assertive, and competent in contrast to the External person who is seen as more dependent, passive, and less effective.

The EEOR produced evidence of a substantial relationship between PLC and achievement; PLC and ethnicity; PLC and SEL. External Control was associated with lower achievement scores, lower SEL, and membership in an ethnic minority. Except for the PLC-SEL relationship, subsequent PLC studies have not always supported the EEOR findings. The lack of consistency in results suggests that generalizations about relationships of PLC with certain variables (e.g. ethnicity, achievement, and gender) may be premature. The need has been indicated for further research problems related to:

1. Differential control orientation as a possible function of differential ethnic-cultural beliefs and values;

2. Differential control orientation as a possible function of congruence or non-congruence between the

student's PLC and teacher and classroom situational variables;

3. Sex differences in PLC as a possible function of sex role specific to a cultural group;

4. Linear versus curvilinear pattern of PLC achievement relationship;

5. Stability versus PLC attributes as determinants of behavior; and

6. Limitations that challenge the construct validity of existing PLC instruments.

Chapter 3

METHODS AND PROCEDURES

This chapter describes the setting, subjects, instruments, and data gathering process as used in this study. The major and minor hypotheses are stated and the statistical procedures employed to test them are described. The discussions are divided into the following headings:

1. The Hypotheses
2. The Research Design
3. The Setting and Sample Description
4. The Instrumentation
5. The Data Collection
6. Treatment of the Data

THE HYPOTHESES

This study investigated the relationship between perceived locus of control (PLC) and school achievement among Filipino-American students in grades 3, 4, 5, and 6, and sought to answer whether or not the moderator variables gender, generational status (GS), and socioeconomic level (SEL) differentiated the nature of this relationship. The potential correlates of PLC (gender, GS, and SEL) were explored. These problems are restated in the following null hypotheses:

Major Hypotheses

Hypothesis One-A: There is no relationship between perceived locus of control and reading achievement;

Hypothesis One-B: There is no relationship between perceived locus of control and math achievement;

Hypothesis Two-A: There is no interaction between perceived locus of control and socioeconomic level upon reading achievement;

Hypothesis Two-B: There is no interaction between perceived locus of control and socioeconomic level on math achievement;

Hypothesis Three-A: There is no interaction between perceived locus of control and gender on reading achievement;

Hypothesis Three-B: There is no interaction between perceived locus of control and gender on math achievement;

Hypothesis Four-A: There is no interaction between perceived locus of control and generational status on reading achievement;

Hypothesis Four-B: There is no interaction between perceived locus of control and generational status on math achievement.

Minor Hypotheses

Hypothesis Five: There is no relationship between perceived locus of control and gender.

Hypothesis Six: There is no relationship between

perceived locus of control and generational status.

Hypothesis Seven: There is no relationship between perceived locus of control and age.

Hypothesis Eight: There is no relationship between perceived locus of control and socioeconomic level.

THE SETTING AND SAMPLE DESCRIPTION

The Setting

The subjects of this study were students in nine elementary schools in the Stockton Unified School District (SUSD). Metropolitan Stockton has a population of 122,000.[1] Being situated in the geographical center of the great Central Valley of California and the hub of rail and highway transportation routes, it is appropriately the seat of the San Joaquin County government. Historically, Stockton's image is that of a major agricultural center. However, it has been undergoing a rapid transition because of growth of government, trade, and manufacturing. Hence, although the city remains a center of farm labor, a great majority of this labor is employed in the vicinity and not within the metropolitan area.

Stockton has a large minority population. The 1977 SUSD Ethnic/Racial Report indicates a white non-Hispanic

---

[1] U.S. Bureau of the Census, Statistical Abstract of the United States: 1977 (98th Edition; Washington, D. C., 1977), p. 210.

student population of 45%, the rest consisting of minority groups with Mexican Americans leading in number. Filipino students form 4.2% of the total school population.[2] The latest City Census of Filipino Americans in Stockton dating back to 1970 shows a count of 3,932 Filipinos in a total population of 107,644. A more recent count is not available, but it is estimated that of the total population of 122,000, no fewer than 5,000 are Filipino Americans. In the decades preceding 1965, Filipinos came to Stockton in large numbers to enter into the farm labor force or into agriculturally-related fields such as canning, food processing, and packaging. The 1965 immigration law which contained provisions preferential to professionals enticed throngs of professionals in diverse fields into the United States (e.g., business administrators, doctors, dentists, nurses, and teachers). However, if the SEL data on the sample population in this study are any indication, there appears to be a considerable number of Filipino immigrants still engaged in farm labor.

The Sample

The subjects of this investigation were 154 Filipino American students drawn from the nine schools having the highest percentage of Filipino Americans as disclosed by the

---

[2]Stockton Unified School District, Ethnic-Racial Report: 1977.

1977 Racial and Ethnic Report of SUSD. The original list of potential subjects was derived from the computer printouts for these nine schools which carried data on ethnicity, sex, age, parents' names, addresses and telephone numbers. Excluded from the list were students categorized as mentally retarded and those rated as LES (limited English speakers) on the language dominance testing administered every year in the district in compliance with Federal guidelines for programs receiving Federal grants. The composition of the subjects by demographic characteristics, is shown in Table 1.

A perusal of Table 1 will show that each grade level is about evenly represented with the exception of the sixth grade, which had only 33 students. A balance had been attempted; however, twenty-six children had to be eliminated for lack of MAT scores in the SUSD records. A cross-section of SEL was represented by the nine schools selected: 3 schools in the low SEL, 4 schools in the middle SEL, and 2 schools in the high SEL areas. Nonetheless, there was an over-representation of the lower SEL groups. There were 118 children from the lower class and only 36 from the middle class group. Since the two higher SEL schools were involved in cross-town desegregation bussing (as were four of the other schools) many of the Filipino-American students in these schools may have been bussed in from low-income areas. Aside from the evident preponderance

Table 1

Demographic Characteristics of the Sample Subjects

	Code	Categories	N	Totals
Grade	3	3	38	
	4	4	42	
	5	5	41	
	6	6	33	154
Gender	1	Female	84	
	2	Male	70	154
Age	1	1 - 112 months	48	
	3	113 - 124 months	49	
	4	125 - 136 months	36	
	5	137 - 154 months	31	154
Socioeconomic Status	1	Middle Class	36	
	2	Lower Class	118	154
Generational Status	1	First	26	
	2	Second	82	
	3	Other	46	154

of lower class over middle class subjects, the imbalance is further heightened by the tendency of the more affluent families to live in North Stockton under the educational jurisdiction of the Lincoln and Lodi School Districts. Some Filipino children attend neighborhood Catholic parochial schools. The number of students born in this country of immigrant parents far exceed those in the other two generational categories, composing more than 50% of the total population. There were 84 girls and 70 boys in this study.

INSTRUMENTATION

Three instruments were used in this investigation: The Metropolitan Achievement Test provided the reading and mathematics scores; The Children's Nowicki-Strickland Internal-External Scale (CNS-IE) measured perceived locus of control; and the Index of Status Characteristics (ISC) by Warner, Meeker and Eels measured socioeconomic status.

The Metropolitan Achievement Test (MAT)

The MAT was the standardized test given in the SUSD in May, 1978 as part of the annual state scholastic achievement testing program. There are six levels of the MAT, each level corresponding to the grade levels K to 1.4, 1.5 to 2.4, 2.5 to 3.4, 3.5 to 4.9, 5.0 to 6.9, and 7.0 to 9.5. The Primary II, the Elementary, and the Intermediate were the levels taken by the subjects in this study. These tests

were empirically standardized two times during the 1969-70 school year with samples selected to represent the national population in terms of geographic region, size of city, socioeconomic level, and public vs. non-public schools. The data in Table 2 show the subtests for each level and the split level reliability coefficients for the primary and intermediate tests.

Table 2

Split Level Reliability Coefficients of the Metropolitan Achievement Tests

Subtests	Level		
	Primary II	Elementary	Intermediate
Word Knowledge	.93	.95	.92
Word Analysis	.90	.93	--
Reading	.93	.95	.93
Total Reading	.96	.97	.96
Spelling	.94	.96	.90
Language	--	--	.95
Math Computation	.86	.91	.84
Math Concepts	.85	.89	.88
Math Problem Solving	.88	.92	.95
Total Math	.95	.96	.95

The established validity and reliability of the MAT tests and its favorable appraisal in Buros's Sixth Mental Measurement Yearbook support the use of the 1978 MAT test results for the subjects of this study as academic achievement data in the analysis.

The Children's Nowicki-Strickland Internal-External Scale (CNS-IE)

The CNS-IE scale is a paper and pencil measure of perceived locus of control, consisting of 40 yes-no questions, the higher scores being associated with Externality. Based on Rotter's conception of the I-E control as a generalized personality attribute, the items cover reinforcement situations across interpersonal and motivational areas such as affiliation, achievement, and dependency. Published later than other PLC scales for children, the CNS-IE scale sought to improve on certain shortcomings observed in some of the earlier scales.

1. It is not consecutively keyed in one direction, avoiding a previous tendency to invite a response set.

2. It applies to a broad band of life situations rather than oriented specifically toward academic situations.

3. It is not vitiated with the social desirability factor.

4. The yes-no response format is easier for younger children to follow than the forced choice format.

The CNS-IE scale was administered to 1,017 students of diverse demographic characteristics to obtain reliability estimates and construct validity information. The authors reported satisfactory estimates of internal consistency by the split-half method:

r = .63 (grades 3, 4, 5)

r = .68 (grades 6, 7, 8)

r = .74 (grades 7, 10, 11)

r = .71 (grade 12)

The report of test-retest reliability sampled 6 weeks apart shows the following reliability data:

r = .63 (grade 3)

r = .66 (grade 7)

r = .71 (grade 10)

r = .76 (grade 12)

Validity information on the CNS-IE scale indicates non-significant relationship with the social desirability factor, IQ, and gender. In terms of convergent validity, the CNS-IE scale is reported to correlate significantly with the Bialer-Cromwell scale and the Rotter scale. It has also been found to be related in a theoretically consistent fashion to demographic variables (e.g., social class, race, age); to achievement; and to constitutional and personality characteristics (e.g., self concept, leadership qualities, social maturity, striving behavior, independence). On the basis of these characteristics, the authors claim the scale to be a methodically precise measure of generalized

locus of control. (A copy of the CNS-IE Scale is in Appendix A.)

The Index of Status Characteristics (ISC)

In Social Class in America, Warner, Meeker, and Eels provided two methods for measuring social class:

1. Evaluated Participation (EP) determines social class participation and acceptance through interview and analytic techniques.

2. Index of Status Characteristics (ISC) primarily measures socioeconomic factors but because of a high degree of correlation with EP, each can be translated into the other with considerable confidence. A conversion table (Appendix B, Table B-1) shows the ISC-EP equivalence provided by the authors.

The validity of ISC is established by: 1) accuracy of prediction of 85% of Old Americans in Yankee City which were placed correctly within one point; 2) correlation with EP method which reports the following correlations for each of the basic status characteristics.

occupation: $r = .91$

source of income: $r = .85$

housetype: $r = .85$

dwelling area: $r = .85$

ISC (all measures): $r = .97$

Each of these four basic status characteristics is assigned a weight: occupation - 4; income - 3; housetype - 3; dwelling

area -2. First, ratings are obtained for each status characteristic on a 7-point scale. These ratings are then multiplied by the assigned weights and totaled. The resulting Index ranges from 12 (very high) to 84 (very low), as illustrated by the following table.

Table 3

Weights and Ratings for Status Characteristics

	Occupation 4	Income 3	House type 3	Dwelling Area 2	ISC
Lowest Rating	7	7	7	7	
Rating x Weight	28	21	21	14	84

By a regression equation the authors have made it possible to determine ISC based on only three characteristics. The resulting Index based on three products is claimed by the authors to still be satisfacory. (Appendix B, Table B-5 shows the modified weighting on the basis of 3 status characteristics.) In this study ISC was used to determine socioeconomic level on the basis of the three criteria discussed below:

Occupation. The ISC classification of occupation was derived from the Alba Edwards classification used in the U.S. Bureau of Census. The Edwards classification was revised to comprise only 7 categories instead of the original

11. The revision improved on the Census scale by taking into account gradations within each job type with respect to the skill required for the job and prestige attached to it. To accommodate this, a job category is not limited to a single rating, but is potentially rated 1 to 7 after both major and minor distinctions are taken into consideration. For example, the rating for "proprietor" depends on the size of the business and the degree of success attained. (The scale for rating occupations is shown in Appendix B, Table B-6.) The authors suggest that when several people in the family are working, a rating should be assigned on the basis of the occupation of the head of the family, usually the father. In this study, the occupation rating the highest was taken into account regardless of whether it was that of the mother or of the father.

Housetype. Homes are rated on the basis of external appearance, (i.e., size and condition) as shown in Table B-7 of Appendix B. It will also be seen that when a house is in very poor condition, size is no longer significant and evaluation depends on condition alone. Apartments' ratings range from 3 to 6 based on the size of the living unit and the building's exterior condition.

Dwelling Area. The rating scale of dwelling areas used for this study was based on the 1975 Census Tract issued by the Stockton City Planning Department which contained

the income data for the different tracts. Seven types of dwelling areas were distinguished on the basis of the average family income of tract residents. Appendix B, Tables B-8 and B-9 show the scale for rating dwelling areas and the 1975 Census Tract for Metropolitan Stockton.

The ISC and the Ethnicity Factor. It is well known that ethnicity has a limiting effect on social participation in the community. A special adjustment was therefore made by the authors to allow for the discrepancies between ISC social class of ethnic minorities and their actual social class as determined by the EP method. As was expected, predictions that did not make allowances for ethnicity resulted in overpredictions. However, it was determined that, on the average, social class for each ethnic group predicted from Old American ISC and those determined by EP were surprisingly similar. It was therefore concluded that no serious error would be introduced by treating ethnic minorities as Old American. Moreover, evidence indicated that the "pull down" effect was observed to be much less pronounced at the lower levels than at the top. Since a large portion of the subjects used in this study belongs to the two lowest SEL levels, these limitations are expected to have very insignificant pull down effect.

DATA COLLECTION

Data for this study were collected in accordance with

policies established by the SUSD Office of Research and Evaluation. Permission of the Coordinator of the Office to conduct the study was obtained as the initial step to the data gathering process.

Demographic Data

The original list of Filipino-American students was derived from enrollment printouts for the nine selected schools, including the children's birthdate, gender, ethnicity, addresses, telephone numbers, and parents' names. Letters were sent to the children's parents explaining the purpose of the study and requesting their written consent to have their children involved in the study. Follow-up telephone calls helped bolster the response rate to about 85 percent. Information sheets filled out by parents provided additional demographic information, namely, birth place of students and their parents (as basis for establishing generational status), and occupation of both parents (one of the criteria for determining SEL).

Socioeconomic Level

The three SEL characteristics used as criteria for computing ISC are shown below with the respective weights assigned to each.

Status Characteristics	Weight
Occupation	5
Dwelling Area	3
Housetype	4

After each characteristic was rated on a scale of 1-7 (highest to lowest) SEL scores were computed by multiplying each rating with their assigned weights and adding the products. The resulting ISC's were then translated into social class by using Warner's ISC-EP conversion table (Appendix B, Table B-1). The illustrative example below describes this scoring process.

Table 4

Sample Computation of an Index of Status Characteristics

John Doe	Rating (1-7)	Weight	Product Rating x Weight
Occupation	6	5	30
Dwelling Area	5	3	15
Housetype	5	4	20
ISC			65

According to the ISC-EP conversion table, this individual would be designated upper-lower class.

As mentioned in the section on Instrumentation, the City of Stockton Census Tract for 1975 provided the basis for the Dwelling Area Scale (Appendix B, Tables B-8 and B-9). The Census Tract to which each of the students' addresses belonged was located and given the corresponding rating. Evaluation of housetype on the other hand was more time

consuming, necessitating actual visits to the home site for visual appraisal of its size and condition. Valuable assistance was provided in this task by the Filipino Community Aide working in the Multilingual-Multicultural Center who was given a briefing on the use of the scale and provided with samples for each housetype. The acquaintance of both the researcher and the community aide with many of the families and their homes reduced the process to a considerable degree.

Perceived Locus of Control

The CNS-IE Scale was group-administered by the researcher in each of the nine selected schools. Principals scheduled tests and designated the rooms for testing. To reduce threats to external validity, attempts were made to make testing conditions as favorable and consistent as possible and administration of the scale was done solely by the researcher. Test groups were kept small, from 10 to 15 children. More than one session was necessary for schools having a large number of sample population.

The following introduction was given preliminary to actual test performance.

> We are trying to find out what boys and girls your age think about certain things. We want you to answer the following questions with yes or no according to the way you feel. Don't take too much time answering any one question, but do try to answer them all.

To ensure understanding and to keep the group working at the same pace, each item was read aloud to the children

two times. Additional repetitions were given upon their request.

The PLC score is the total number of scores in the External direction. Theoretically the range was 0 to 40. The measured range was 3 to 27. The total group was divided into Internals, Medium, and External Categories using the grand mean (17.14) as the point of departure.

PLC Score	PLC Category
3 - 14	Internal
15 - 19	Medium
20 - 27	External

Academic Achievement

Access to the children's MAT scores in the Research and Evaluation Office of SUSD was accorded to the researcher upon compliance with the requirements, e.g., presenting documents of parents showing their informed consent, and the permission of the Coordinator of the Office of Research and Evaluation. The MAT was the achievement test administered in 1978 in SUSD pursuant to the annual state achievement testing program. The data in Table 5, entitled Sample Characteristics include Mean scores in reading, math, and PLC of the subpopulations by gender, age range, generational status, and socioeconomic level.

Table 5

Sample Characteristics

		N	PLC		Reading		Math	
	in months		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Age	10 - 112	48	17.92	3.11	57.44	9.54	63.37	12.55
	113 - 124	49	18.08	3.56	63.84	10.69	72.02	11.21
	125 - 136	36	15.58	4.38	73.55	10.43	84.22	9.73
	137 - 154	21	15.86	4.48	71.76	10.58	85.33	11.07
Gender	Girls	84	16.77	4.31	67.63	12.42	76.64	14.54
	Boys	70	17.58	3.33	62.27	10.97	70.81	13.42
SEL	Middle	36	15.44	4.75	70.31	14.37	79.67	14.49
	Lower	118	17.66	3.46	63.64	10.84	72.27	13.84
GS	First	26	17.65	3.78	65.12	11.06	75.84	14.70
	Second	82	16.94	3.64	65.56	12.26	74.28	14.44
	Other	46	17.22	4.44	64.59	12.41	72.43	13.95
PLC	Internal	47			70.17	12.07	79.79	14.58
	Medium	64			63.42	12.38	69.98	14.16
	External	43			62.39	9.08	73.63	12.19

TREATMENT OF THE DATA

All the data for this investigation were analyzed at the computer facilities of the University of the Pacific using the Statistical Package for the Social Sciences for B6700 Version H. Analysis of Variance with MULTIPLE CLASSIFICATION ANALYSIS and BREAKDOWN options were the principal procedures used. A series of 3-way Analysis of Variance (ANOVA) tested: (a) the relationship between the outcome variables, reading and math achievement, and the classification variables PLC, gender, GS and SEL; (b) Interaction among the different classification variables on achievement; and (c) the relationships between PLC and the demographic variables age, gender, GS, and SEL. The Pearson Correlational Procedure was used to determine significance of:

(a) PLC-achievement correlations by sub-populations of age, gender, GS, and SEL;

(b) PLC-age correlations by SEL groups; and

(c) PLC-SEL correlations by age groups.

SUMMARY

The two variables of primary interest in this study were school achievement as measured by the MAT reading and math scores, and perceived locus of control as measured by the CNS-IE scale. The purpose of this study was to test the hypothesized importance of the locus of control construct as a learning variable on 154 Filipino-American students in nine

elementary schools of Stockton Unified School District. Three variables, gender, GS, and SEL were studied as possible factors affecting variance in PLC - achievement relationship, and as factors related to PLC. Data for this investigation were derived from the following sources:

1. Demographic data - Information sheets from parents;
2. Academic achievement - MAT scores in reading and math;
3. PLC - Children's Nowicki-Strickland I-E Scale; and
4. SEL - Warner's Index of Status Characteristics.

In this correlational study design, the principal statistical procedures employed were a series of 2-way, and 3-way ANOVA's and the Pearson Correlational computations. The selected level of significance was α .05. The results of these analyses are presented in the next chapter.

Chapter 4

SUMMARY OF RESULTS

The purpose of this study was threefold: (a) to investigate perceived locus of control (PLC) in relation to reading and math achievement; (b) to explore possible interaction between PLC and some demographic variables (gender, socioeconomic level (SEL) and generational status (GS)) in relation to reading and math achievement; and (c) to examine the variables age, gender, SEL, and GS as potential PLC correlates. The primary statistical method used for the eight hypotheses formulated was the Analysis of Variance (ANOVA) procedure. For purposes of comparison by subpopulations of age, gender, GS, and SEL, correlation coefficients were obtained through the Pearson correlational procedure. The significance level selected for the study was $\alpha = .05$.

THE MAJOR HYPOTHESES

The four major hypotheses were concerned with school achievement as the outcome variable focusing on PLC as the classification variable of main interest. Interrelationships were also explored among PLC and other classification variables: gender, generational status (GS), and socioeconomic level (SEL).

Hypothesis One-A

There is no relationship between perceived locus of control and reading achievement.

It can be inferred from the 3-way ANOVA results reported in Table 6 (page 69) that this hypothesis is rejected. The relationship between PLC on achievement is indicated by an F-value of 5.550 and $p < .005$. This factor accounted for more variance in achievement than any of the other factors considered, namely generational status, gender and socioeconomic level. An examination of the table of reading mean scores in Table 7 (page 70) shows the general tendency of progressive achievement increase from External to Internal levels. This tendency is more clearly depicted in the graph in Figure 1 (page 71). An interesting observation is the deviation of the first age group from the expected achievement - PLC relationship. Among this youngest set, the ELC's (External locus of control) are the highest achievers and the ILC's (Internal locus of control) are the lowest achievers. However, from the second age level and thereafter the picture reverses and takes the predicted direction with the achievement gap progressively increasing at each level.

Hypothesis One-B

There is no relationship between perceived locus of control and math achievement.

Rejection of this hypothesis is clearly indicated by

Table 6

Analysis of Variance Source Table for Reading Achievement By Perceived Locus of Control, Gender and Socioeconomic Level

Source of Variation	Sum of Squares	DF	Mean Square	F	Probability under H
PLC	1294,536	2	647.268	5.550**	.005
Gender	742.285	1	742.285	6.364**	.013
SEL	795.848	1	795.848	6.823**	.010
PLC X Gender	506.490	2	253.245	2.171	.118
PLC X SEL	853.743	2	426.872	3.660*	.028
Gender X SEL	714.292	1	714.292	6.124*	.015
PLC X Gender X SEL	219.888	2	109.444	0.943	.392
Explained	5642.614	11	512.910	4.398	.000
Residual	16562.142	142	116.635		
Total	22204.156	153	145.125		

** $p < .01$

* $p < .05$

Table 7

Reading Mean Scores By Perceived Locus of Control and Age Level

Age (in months)	Internal LC	Medium LC	External LC
90 to 112	$\bar{X}$ = 53.12 SD = 8.06 N = 8	$\bar{X}$ = 56.96 SD = 10.61 N = 26	$\bar{X}$ = 60.78 SD = 7.31 N = 14
113 to 124	$\bar{X}$ = 67.77 SD = 9.59 N = 13	$\bar{X}$ = 63.75 SD = 12.12 N = 20	$\bar{X}$ = 60.75 SD = 9.07 N = 16
125 to 136	$\bar{X}$ = 76.06 SD = 10.95 N = 17	$\bar{X}$ = 73.27 SD = 11.23 N = 11	$\bar{X}$ = 68.62 SD = 6.78 N = 8
137 to 154	$\bar{X}$ = 77.66 SD = 7.18 N = 9	$\bar{X}$ = 71.00 SD = 6.19 N = 7	$\bar{X}$ = 62.20 SD = 14.34 N = 5
Total Population	$\bar{X}$ = 70.17 SD = 2.67	$\bar{X}$ = 63.42 SD = 12.37	$\bar{X}$ = 62.39 SD = 9.08

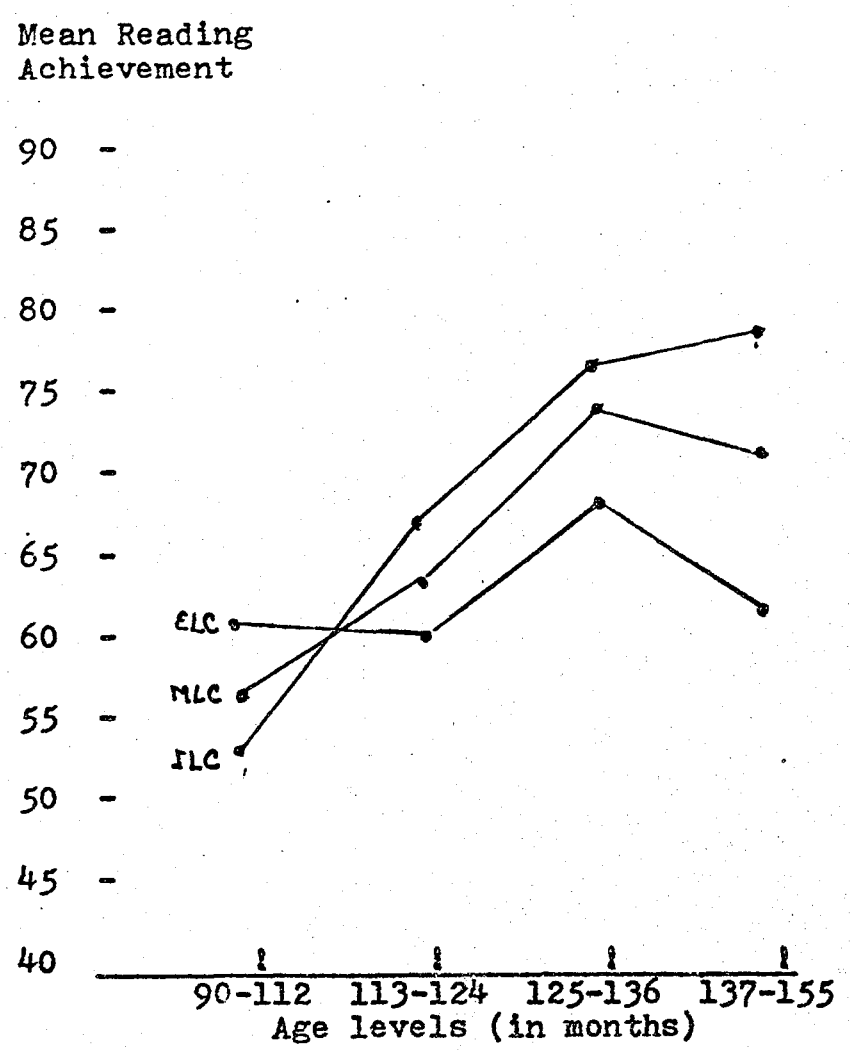

Figure 1

Reading Achievement by Perceived Locus of Control and Age Level

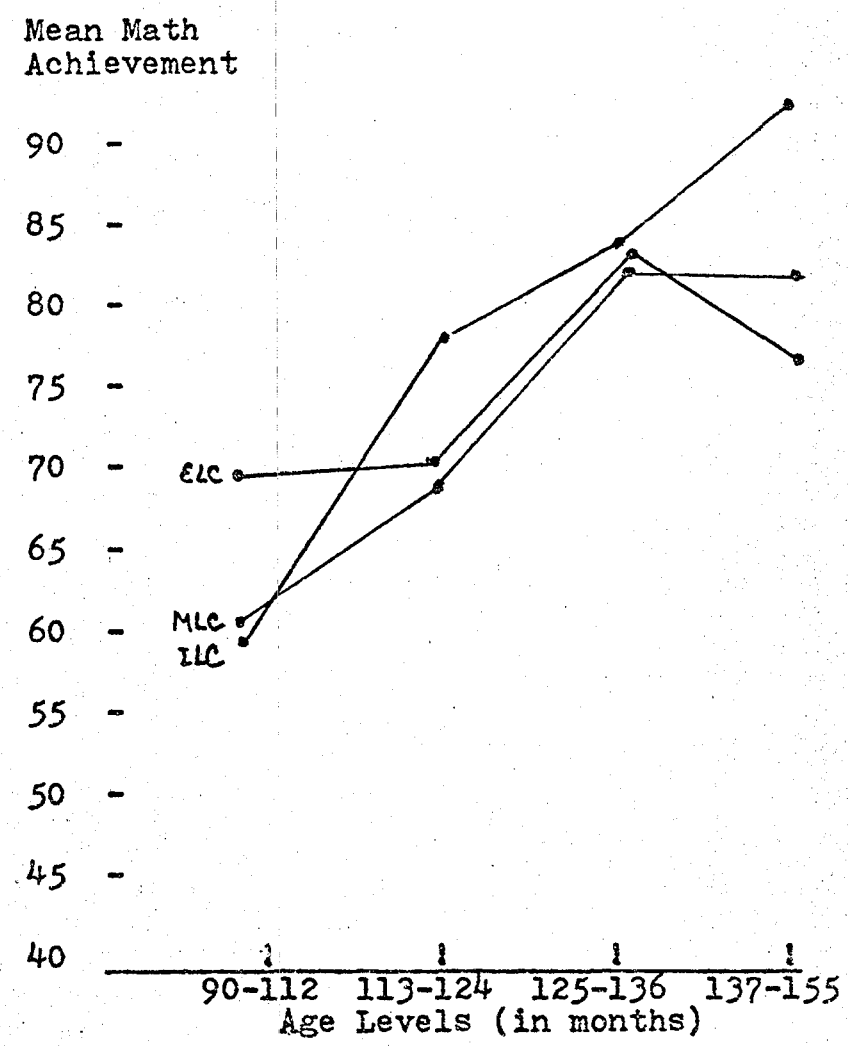

Figure 2

Math Achievement by Perceived Locus of Control and Age Level

the summary of ANOVA results in Table 8 (page 73). Again, the degree of significance shown for this factor exceeds those for gender and socioeconomic level, with the F-value of 6.792, $p < .002$. As in reading therefore, math scores are shown to vary systematically with the children's perception of locus of environment control. A perusal of the mean scores in Table 9 (page 74), shows a confirmation of superiority of ILC's performance over the ELC's and the MLC's. The MLC's, however, had lower mean scores than the ELC's at every age level except in the third level (125-136 months). Again, the deviating pattern in the first age group is manifested in math achievement, with ELC's achieving highest.

Hypothesis Two-A

There is no interaction between perceived locus of control and socioeconomic level in reading achievement.

A significant interaction between perceived locus of control and socioeconomic level was shown by the 3-way ANOVA as indicated in the summary of results in Table 6 (page 69) ($F = 3.660$, $p < .028$), hence, this null hypothesis is rejected. The nature of this interaction is shown in the reading achievement breakdown by PLC and SEL in Table 10 (page 75), and the delineation of this breakdown in Figure 3 (page 76).

The data indicate that the significant finding for PLC - reading achievement relationship is largely attributable to the middle class group, which displayed notably

Table 8

Analysis of Variance Source Table for Math Achievement by Perceived Locus of Control, Gender and Socioeconomic Level

Source of Variation	Sum of Squares	DF	Mean Square	F	Probability under H
PLC	2308.484	2	1154.242	6.792**	.002
Gender	1026.097	1	1026.097	6.038**	.015
SEL	1004.172	1	1004.172	5.909*	.016
PLC X Gender	901.210	2	450.605	2.651	.074
PLC X SEL	737.218	2	368.609	2.169	.118
Gender X SEL	599.489	1	599.489	3.528	.062
PLC X Gender X SEL	172.417	2	86.208	.507	.603
Explained	7138.869	11	648.988	3.819	.000
Residual	24132.124	142	169.945		
Total	31270.994	153	204.386		

** $p < .01$

* $P < .05$

Table 9

Math Mean Scores by Perceived Locus of Control and Age Level

Age (in months)	Internal LC	Medium LC	External LC
	$\overline{X}$ = 60.37	$\overline{X}$ = 60.73	$\overline{X}$ = 70.00
90 - 112	SD = 13.08	SD = 10.68	SD = 13.82
	N = 8	N = 26	N = 14
	$\overline{X}$ = 77.31	$\overline{X}$ = 69.95	$\overline{X}$ = 70.31
113 - 124	SD = 10.51	SD = 12.47	SD = 9.16
	N = 13	N = 20	N = 16
	$\overline{X}$ = 84.12	$\overline{X}$ = 83.91	$\overline{X}$ = 84.87
125 - 136	SD = 11.12	SD = 9.57	SD = 7.74
	N = 17	N = 11	N = 8
	$\overline{X}$ = 92.44	$\overline{X}$ = 82.57	$\overline{X}$ = 76.40
137 - 154	SD = 7.21	SD = 8.7	SD = 12.99
	N = 9	N = 7	N = 5
	$\overline{X}$ = 79.78	$\overline{X}$ = 69.98	$\overline{X}$ = 73.63
Total Population	SD = 14.58	SD = 14.16	SD = 12.19
			N = 154

Table 10

Reading Mean Scores By Perceived Locus of Control and Socioeconomic Level

Socioeconomic Level	Internal LC	Medium LC	External LC
Middle Class	$\bar{X}$ = 79.79 SD = 8.28 N = 14	$\bar{X}$ = 64.93 SD = 16.84 N = 14	$\bar{X}$ = 63.12 SD = 9.11 N = 8
Lower Class	$\bar{X}$ = 66.09 SD = 12.05 N = 33	$\bar{X}$ = 63.00 SD = 10.99 N = 63	$\bar{X}$ = 62.23 SD = 9.20 N = 35

Table 11

Math Mean Scores By Perceived Locus of Control and Socioeconomic Level

Socioeconomic Level	Internal LC	Medium LC	External LC
Middle Class	$\bar{X}$ = 89.36 SD = 8.14 N = 14	$\bar{X}$ = 72.00 SD = 16.48 N = 14	$\bar{X}$ = 76.12 SD = 10.11 N = 14
Lower Class	$\bar{X}$ = 75.73 SD = 14.88 N = 33	$\bar{X}$ = 69.42 SD = 13.58 N = 50	$\bar{X}$ = 73.06 SD = 12.68 N = 35

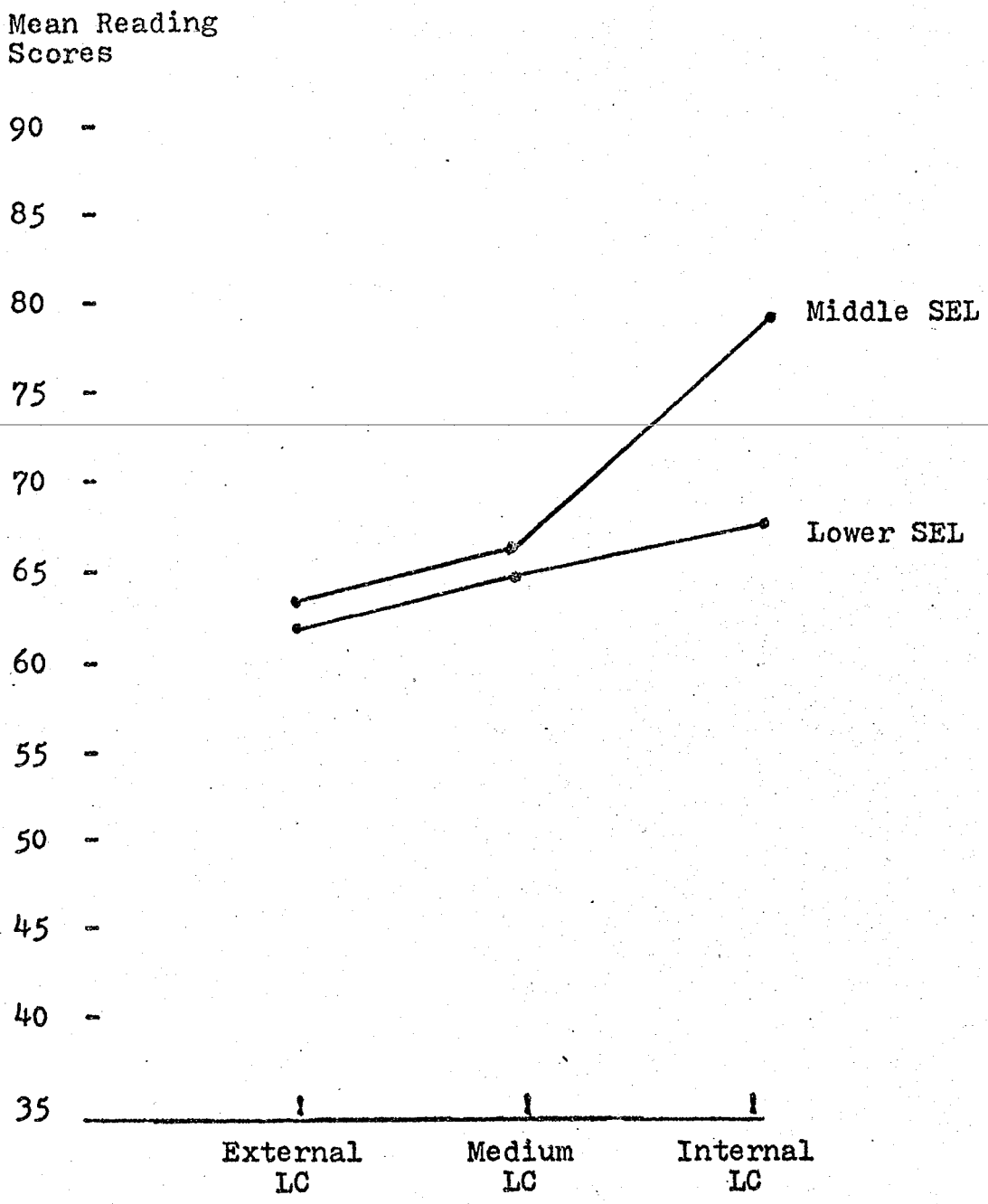

Figure 3

Interaction of Perceived Locus of Control And Socioeconomic Level on Reading Achievement

higher scores for the ILC's than for the other two PLC groups. In contrast, among the lower class children, the reading mean scores of the three types of control orientation were very similar. To test for significance of PLC - achievement correlations by SEL groups, the Pearson Correlational procedure was employed. The resulting coefficients shown in Table 12 (page 78) reveal significant correlations for the higher SEL, but not for the lower SEL group. What is alluded here is that among middle class children Internality is associated with reading achievement. Among the poorer students, the PLC - reading achievement relationship cannot be demonstrated with confidence.

Hypothesis Two-B

There is no interaction effect between perceived locus of control and socioeconomic level of math achievement.

The F-value of the PLC - SEL interaction failed to achieve significance at $F = 2.169$, $p < .118$ (Table 8, page 73). Accordingly this null hypothesis is retained. However, it can be inferred from the math achievement breakdown in Table 11 (page 75) that a differentiating influence of SEL does obtain although at lesser degree than in reading. Internality among higher SEL children is clearly more favored in terms of math achievement than among the lower SEL. Unlike the reading achievement data however, the linearity of relationship is not very clear in math

Table 12

Pearson Correlation Coefficients for Achievement and Perceived Locus of Control

		N	PLC	Reading	Math
Age	90 - 112	48	$\bar{X}$ = 17.92 SD = 3.11	r = .1847 (S = .104) $\bar{X}$ = 57.44 (SD = 9.54)	r = .1843 (S = .105) $\bar{X}$ = 63.38 (SD = 12.55)
	113 - 124	49	$\bar{X}$ = 18.08 SD = 3.56	r = -.2190 (S = .065) $\bar{X}$ = 63.84 (SD = 10.69)	r = -.184 (S = .103) $\bar{X}$ = 72.02 (SD = 11.21)
	125 - 136	36	$\bar{X}$ = 15.58 SD = 4.38	*r = -.3541 (S = .017) $\bar{X}$ = 73.56 (SD = 10.43)	r = -.0105 (S = .476) $\bar{X}$ = 84.22 (SD = 9.73)
	137 - 155	21	$\bar{X}$ = 15.86 SD = 4.47	**r = -.6395 (S = .001) $\bar{X}$ = 7.76 (SD = 10.58)	**r = -.6326 (S = .001) $\bar{X}$ = 85.33 (SD = 11.07)
Gender	Girls	84	$\bar{X}$ = 16.77 SD = 4.31	**r = -.2783 (S = .005) $\bar{X}$ = 67.63 (SD = 12.42)	*r = -.2201 (S = .022) $\bar{X}$ = 76.64 (SD = 14.54)
	Boys	70	$\bar{X}$ = 17.70 SD = 3.46	**r = -.3473 (S - .002) $\bar{X}$ = 62.27 (SD = 10.97)	r = -.1698 (S = .08) $\bar{X}$ = 70.81 (SD = 13.42)

Table 12. Continued.

		N	PLC	Reading	Math
Socioeconomic Level	Middle SEL	36	$\bar{X}$ = 15.44 SD = 4.75	**r = -.5372 (S = .001) $\bar{X}$ = 70.31 (SD = 14.38)	**r = -.5010 (S = .001) $\bar{X}$ = 79.67 (SD = 14.49)
	Lower SEL	118	$\bar{X}$ = 17.66 SD = 3.46	r = -.1408 (S = .064) $\bar{X}$ = 63.64 (SD = 10.84)	r = -.0646 (S = .243) $\bar{X}$ = 72.26 (SD = 13.84)
Generational Status	First	26	$\bar{X}$ = 17.65 SD = 3.78	**r = -.4455 (S = .011) $\bar{X}$ = 65.12 (SD = 11.06)	*r = -.3230 (S = .054) $\bar{X}$ = 75.85 (SD = 14.70)
	Second	82	$\bar{X}$ = 16.94 SD = 3.64	**r = -.2924 (S = .004) $\bar{X}$ = 65.56 (SD = 12.26)	r = .1658 (S = .068) $\bar{X}$ = 74.28 (SD = 14.40)
	Other	46	$\bar{X}$ = 17.22 SD = 4.44	*r = -.3135 (S = .017) $\bar{X}$ = 64.59 (SD = 12.41)	*r = -.3160 (S = .016) $\bar{X}$ = 72.43 (SD = 13.95)

**P < .01

*P < .05

achievement. A curvilinear effect is seen with the MLC's (medium locus of control) achieving lower than the ILC's and the ELC's in both the middle class and the lower class groups. An inspection of the Pearson correlational data for SEL group in Table 12 (pages 78-79) show significant correlations for the middle class children and non-significance for the lower class, which parallels the findings for reading achievement.

Hypothesis Three-A

There is no interaction effect between perceived locus of control and gender on reading achievement.

The retention of this hypothesis is indicated by the ANOVA data in Table 13 (page 81) which show non-significant PLC - gender interaction ($F = .868$, $p < .422$). For the subject population of this study, it would seem that gender is not a differentiating factor for the PLC-reading achievement relationship. The data in Table 12 (pages 78-79) show significant coefficients for both boys and girls attesting to the existence of expected correlational relationship between perceived locus of control and reading achievement in both gender groups. Another noteworthy observation is the consistent superiority of the girls' mean scores over those of the boys' in all PLC categories (Table 14, page 82). This showing duplicates the strong main effect assigned to gender in the ANOVA data in Table 6 (page 69).

Table 13

Analysis of Variance Source Table for Reading Achievement By Perceived Locus of Control, Gender, and Generational Status

Source of Variation	Sum of Squares	DF	Mean Squares	F	Probability under H_o
PLC	1507.824	2	753.912	5.430**	.005
Gender	895.435	1	895.435	6.450**	.012
GS	1.348	2	.674	.005	.995
PLC X Gender	241.024	2	120.511	.868	.422
PLC X GS	99.255	4	24.814	.179	.949
Gender X GS	97.818	2	48.909	.352	.704
PLC X Gender X GS	282.365	4	70.591	.508	.730
Explained	3322.551	17	195.444	1.408	.142
Residual	18881.604	137	138.835		
Total	22204.156	153	145.125		

** $p < .01$

Table 14

Reading Mean Scores by Perceived Locus of Control and Gender

Gender	Internal LC	Medium LC	External LC
Girls	$\bar{X}$ = 70.61 SD = 13.99 N = 28	$\bar{X}$ = 66.32 SD = 12.90 N = 37	$\bar{X}$ = 65.79 SD = 7.98 N = 19
Boys	$\bar{X}$ = 69.53 SD = 10.77 N = 19	$\bar{X}$ = 59.44 SD = 10.61 N = 27	$\bar{X}$ = 59.71 SD = 9.14 N = 24

Table 15

Reading Mean Scores by Perceived Locus of Control and Generational Status

SEL	Internal LC	Medium LC	External LC
First Generation	$\bar{X}$ = 70.33 SD = 12.91 N = 9	$\bar{X}$ = 64.43 SD = 9.45 N = 7	$\bar{X}$ = 60.90 SD = 9.19 N = 10
Second Generation	$\bar{X}$ = 70.31 SD = 13.44 N = 26	$\bar{X}$ = 62.97 SD = 11.89 N = 38	$\bar{X}$ = 64.17 SD = 9.56 N = 18
Other Generations	$\bar{X}$ = 69.75 SD = 11.79 N = 12	$\bar{X}$ = 63.95 SD = 14.65 N = 19	$\bar{X}$ = 61.26 SD = 8.66 N = 15

Hypothesis Three-B

There is no interaction between perceived locus of control and gender on math achievement.

The 3-way ANOVA results in Table 16 (page 84) reveal negative findings for interaction between perceived locus of control and gender in the area of math achievement. This null hypothesis is thus retained. As portrayed in Table 12 (pages 78-79), the PLC - Math achievement correlation coefficients for both genders were approximately equal. Again, the girls showed better performance than the boys in all the PLC groups as indicated in the data presented in Table 18 (page 82).

Hypothesis Four-A

There is no interaction between perceived locus of control and generational status on reading achievement.

Since no significant interaction was detected between perceived locus of control and generational status of reading achievement (Table 13, page 81), this hypothesis is retained. Data shown in Table 15, page 82, shows that regardless of generational status then, PLC - reading achievement association maintains the expected pattern of higher achievement for Internals. Reference to the correlation coefficient data in Table 12 (pages 78-79) will show that significant PLC - achievement correlations did obtain at all three generational categories.

Table 16

Analysis of Variance Source Table for Math Achievement
By Perceived Locus of Control, Gender,
and Generational Status

Source of Variation	Sum of Squares	DF	Mean Square	F	Probability under H_o
PLC	2459.449	2	1229.725	6.462**	.002
Gender	1191.906	1	1191.906	6.263**	.014
GS	73.013	2	36.506	0.192	.826
PLC X Gender	594.036	2	297.018	1.561	.214
PLC X GS	507.080	4	126.770	0.666	.617
Gender X GS	3.633	2	1.817	0.010	.991
PLC X Gender X GS	387.092	4	94.523	0.497	.738
Explained	5389.618	17	317.036	1.666	.057
Residual	25881.376	136	190.304		
Total	31270.994	153	204.386		

** $p < .01$

* $p < .05$

Table 17

Math Mean Scores by Perceived Locus of Control and Generational Status

SEL	Internal LC	Medium LC	External LC
First Generation	$\bar{X}$ = 79.00 SD = 14.81 N = 9	$\bar{X}$ = 76.71 SD = 14.10 N = 7	$\bar{X}$ = 72.40 SD = 15.79 N = 10
Second Generation	$\bar{X}$ = 79.58 SD = 15.56 N = 26	$\bar{X}$ = 69.61 SD = 14.13 N = 38	$\bar{X}$ = 76.50 SD = 10.28 N = 18
Other Generation	$\bar{X}$ = 80.83 SD = 13.29 N = 12	$\bar{X}$ = 68.26 SD = 14.29 N = 19	$\bar{X}$ = 71.00 SD = 11.76 N = 15

Table 18

Math Mean Scores by Perceived Locus of Control and Gender

Gender	Internal LC	Medium LC	External LC
Girls	$\bar{X}$ = 80.07 SD = 15.29 N = 28	$\bar{X}$ = 74.24 SD = 14.73 N = 37	$\bar{X}$ = 76.26 SD = 12.64 N = 19
Boys	$\bar{X}$ = 79.36 SD = 19.00 N = 19	$\bar{X}$ = 64.15 SD = 11.16 N = 27	$\bar{X}$ = 71.54 SD = 11.66 N = 24

Hypothesis Four-B

There is no interaction between perceived locus of control and generational status on math achievement.

As disclosed by the data in Table 16 (page 84),the interaction between perceived locus of control and generational status is nonsignificant, at $F = .666$, $p < .617$. This hypothesis is therefore retained. Reference to the Pearson Correlation Coefficients (Table 12, pages 79-80) indicates significant correlations for the first and third generations. The correlation for the second scarcely missed reaching significance with $r = -.1658$, $p < .068$. It seems that by and large, control orientation is significantly associated with math achievement regardless of generational status. This showing is further substantiated by the data in Table 17 (page 85).

THE MINOR HYPOTHESES

In the remaining four hypotheses, perceived locus of control was investigated as potentially related to gender, age, generational status, and socioeconomic level. As in the major hypotheses, Analysis of Variance and Pearson Correlational procedures constitute the statistical methods employed to test the minor hypotheses.

Hypothesis Five

There is no relationship between perceived locus of control and gender.

The results of the 3-way ANOVA shown in Table 19 (page 88) did not support the predicted PLC - gender relationship. Retention of this hypothesis is thus indicated. The table of PLC mean scores in Table 20 (page 89) does show slight differences between the boys' and girls' scores. For this set of subjects then, gender exerts little promise as an indicator of locus of control orientation.

Hypothesis Six

There is no relationship between perceived locus of control and generational status.

This null hypothesis is retained since no significant relationship was disclosed by the ANOVA data shown in Table 19 (page 88). It will be observed that there is a 3-way interaction shown for gender, age, and generational status. Additional probings however were not done because the resulting subpopulations were too small to allow analysis of adequate reliability. We may infer that for the subjects of this study, generational status and PLC are not significantly related.

Hypothesis Seven

There is no relationship between perceived locus of control and age.

The strong main effects assigned to age factor by the ANOVA computations shown in Table 22 (page 90) indicate rejection of this hypothesis. The generally assumed increment

Table 19

Analysis of Variance Source Table for Perceived Locus of Control by Gender, Age, and Generational Status

Source	Sum of Squares	DF	Mean Square	F	Probability under H_o
Gender	26.161	1	26.161	1.98	.161
Age	205.994	3	68.665	5.20**	.002
Gen. Status	15.386	2	7.693	0.58	.560
Gender X Age	39.243	3	13.081	0.992	.399
Gender X GS	42.429	2	21.214	1.608	.204
Age X GS	79.781	6	13.21	1.002	.427
Gender X Age X GS	221.113	6	36.85	2.794	.014
Explained	615.95	23	26.781	2.030	.007
Residual	1714.900	130	13.192		
Total	2330.857	153	15.234		

** $p < .01$

Table 20

Perceived Locus of Control Mean Scores by Gender

	N	PLC $\bar{X}$	SD
Girls	84	16.77	4.31
Boys	70	17.59	3.33

Table 21

Perceived Locus of Control Mean Scores by Generational Status

Generational Status	N	PLC $\bar{X}$	SD
First Generation	26	17.65	3.78
Second Generation	82	16.94	3.64
Third Generation	46	17.22	4.44

Table 22

Analysis of Variance Source Table for Perceived Locus of Control Scores by Gender, Age, and Socioeconomic Level

Source	Sum of Squares	DF	Mean Square	F	Probability under H_0
Gender	18.376	1	18.37	1.35	.247
Age	135.521	3	45.17	3.32*	.022
SEL	183.853	3	67.28	4.51**	.005
Gender X Age	40.796	3	13.59	1.002	.394
Gender X SEL	16.213	3	5.40	0.398	.755
Age X SEL	44.949	7	6.42	0.473	.853
Gender X Age X SEL	89.345	6	14.89	1.097	.368
Explained	606.984	26	23.346	1.720	.026
Residual	1723.874	127	13.574		
Total	2330.857	153	15.234		

** $p < .01$
* $p < .05$

of Internality of control orientation with age is thus verified. Analysis of the data in Table 23 (page 92), reveals that the perceived locus of control differentiation occurred mainly in the last two age ranges and are attributed mostly to the middle class children.

The Pearson correlational computation was used to determine the PLC - age correlations by SEL groups. The summary of results reported in Table 24 (page 94) substantiates the predicted negative correlation for the Middle SEL at p .05 significance level. (The coefficient for lower SEL children approached but failed to achieve significance at the .05 level). This indicates a higher degree of progressive development toward the Internal direction among the middle-class children. A higher proportion of poorer children tends to remain in the External locus of control category.

Hypothesis Eight

There is no relationship between perceived locus of control and socioeconomic level.

The ANOVA results reproduced in Table 22 (page 90) statistically verify significant PLC - SEL relationship. Hence this hypothesis is rejected. This factor in fact is shown to be the strongest predictor of I-E control. There is considerable concurrence in control orientation research literature on the PLC - SEL association so that these results hardly come as a surprise.

Table 23

Perceived Locus of Control Mean Scores by Socioeconomic Level and Age Level

Age Range	N	SEL	PLC $\bar{X}$	SD
100 - 112	11	Middle	17.55	3.47
	37	Lower	18.03	3.04
113 - 124	5	Middle	17.60	2.51
	44	Lower	18.14	3.68
125 - 136	12	Middle	13.83	5.51
	24	Lower	16.46	3.50
137 - 154	8	Middle	13.62	5.09
	13	Lower	17.23	3.59

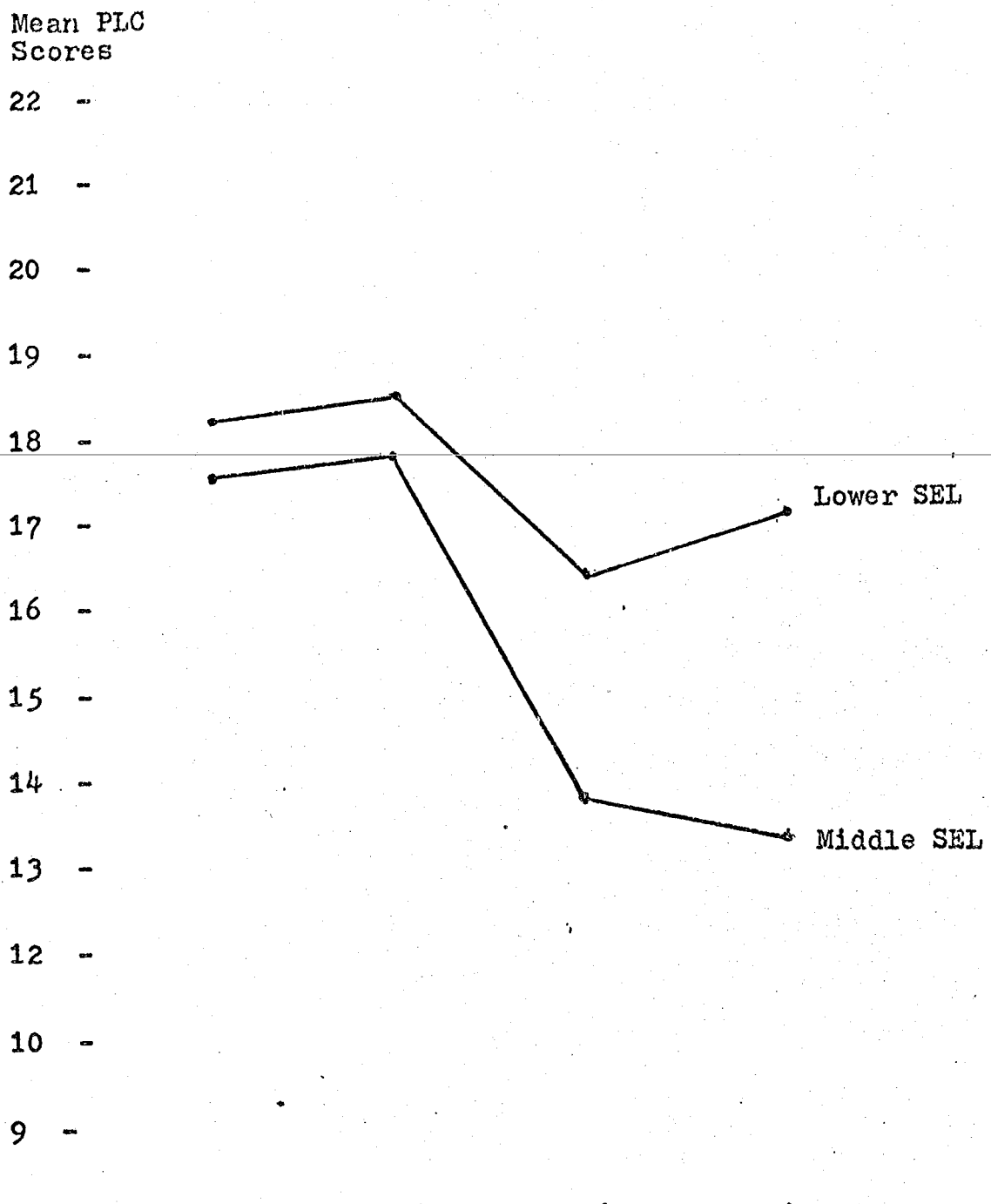

Figure 4

Mean Perceived Locus of Control Scores
by Socioeconomic Level and Age Level

Table 24

Pearson Correlation Coefficients for Perceived Locus of Control and Age by Socioeconomic Level

	N	Age	PLC	Correl. Coefficient
Middle SEL	36	$\bar{X}$ = 122.14 SD = 13.97	$\bar{X}$ = 15.66 SD = 4.65	r = -.3105* s = .035
Lower SEL	118	$\bar{X}$ = 119.30 SD = 12.70	$\bar{X}$ = 17.66 SD = 3.46	r = .099 s = .142

* $p < .05$

Table 25

Pearson Correlation Coefficients for Perceived Locus of Control and Socioeconomic Level by Age Level

Age Level	N	PLC Mean	SD	Correl. Coefficient
90 - 112 mos. ($\bar{X}$ = 100 mos.)	36	PLC $\bar{X}$ = 17.91 SEL $\bar{X}$ = 67.3	3.11	r = .0657 s = .329
113 - 124 mos. ($\bar{X}$ = 115.7)	48	PLC $\bar{X}$ = 18.08 SEL $\bar{X}$ = 68.8	3.56	r = .0460 s = .377
125 - 136 mos. ($\bar{X}$ = 133.9)	49	PLC $\bar{X}$ = 15.58 SEL $\bar{X}$ = 64.5	4.38	r = .2867* s = .045
137 - 155 mos. ($\bar{X}$ = 140.8)	36	PLC $\bar{X}$ = 15.86 SEL $\bar{X}$ = 60.05	4.48	r = .4009* s = .036

* $p < .05$

The PLC mean breakdown by SEL in Table 23 (page 92), as well as its pictorial representation in Figure 4 (page 93) makes two tendencies readily apparent:

1. The lower SEL children consistently have higher PLC scores (signifying Externality) than the higher SEL group; and

2. There is definite evidence of growth toward the Internal direction among the middle class children. In contrast, the lower class children tend to remain on the same PLC level across the four age spans.

The degrees of significance of the PLC - SEL correlations by age groups were determined using the Pearson correlational procedure. The summary of results depicted in Table 25 (page 94) reveals significant correlations at the .05 level only for the last two age ranges. This showing conforms with the results represented in the graph in Figure 4 (page 93) which similarly indicates greater differentiation between the two socioeconomic levels in the last two age levels.

ADDITIONAL FINDINGS

A tangential finding in the current investigation is the magnitude of main effect on achievement exerted by the gender and socioeconomic factors. Reference to Tables 6 (page 69), and 8 (page 73) shows the main effect of SEL at $F = 6.823$, $p < .010$ for reading and $F = 5.909$, $p < .016$

for math. A breakdown of math and reading scores by age level is pictured in the graphs in Figure 5 and 6 (page 97). The overall picture shows progressive achievement increase for both SEL groups, but the middle class children achieve higher than their lower class peers at every age level.

Gender similarly displayed a higher significant relationship with reading ($F = 6.364$, $p < .013$) and math ($F = 6.038$, $p < .015$) achievement. The graph in Figures 7 and 8 (page 98) shows the boys' achievement as generally lower than the girls' across all age levels.

SUMMARY

The major hypotheses of this study pertained to the interrelationship among academic achievement, perceived locus of control gender, generational status and socioeconomic level. With academic achievement as the outcome variable and perceived locus of control as the principal classification variable, the statistical analysis revealed the following outcomes:

1. Strong support was found for the focal hypothesis which predicted relationship between perceived locus of control and achievement. The control dimension was found to account for a larger proportion of achievement variance than gender, generational status, and socioeconomic level in both reading and math achievement. It appears, therefore, that

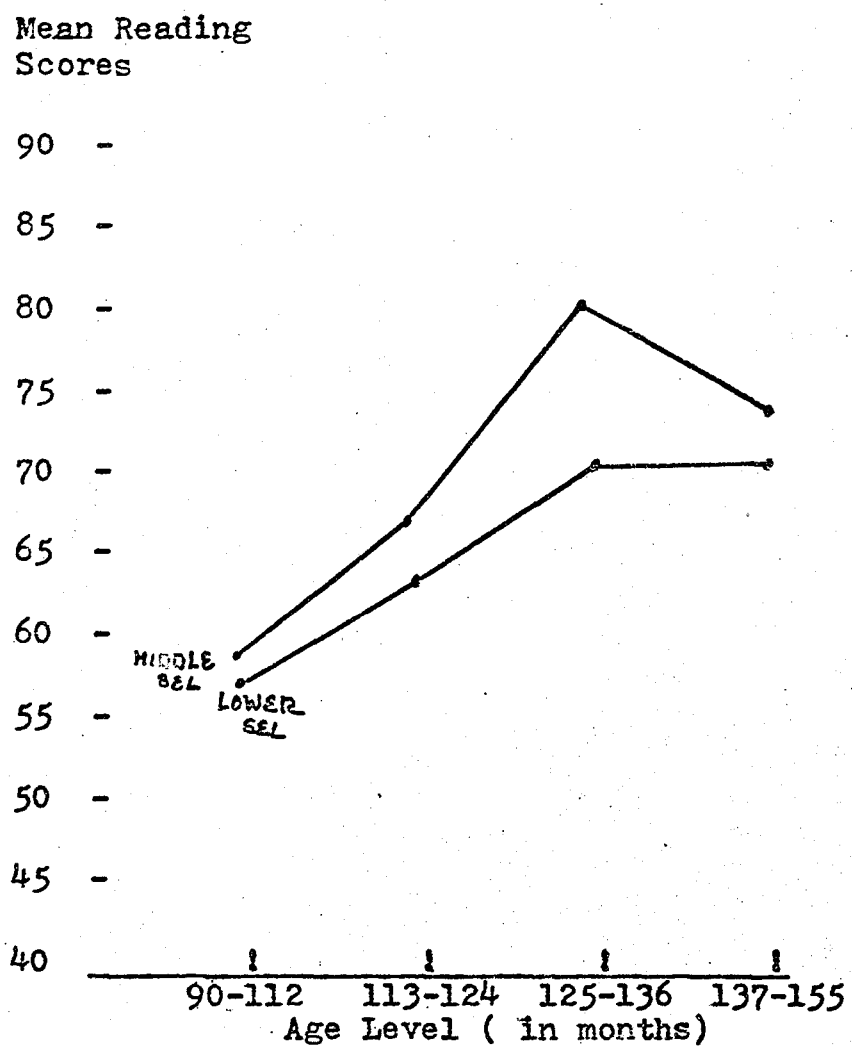

Figure 5

Reading Achievement by Age Level and Socioeconomic Level

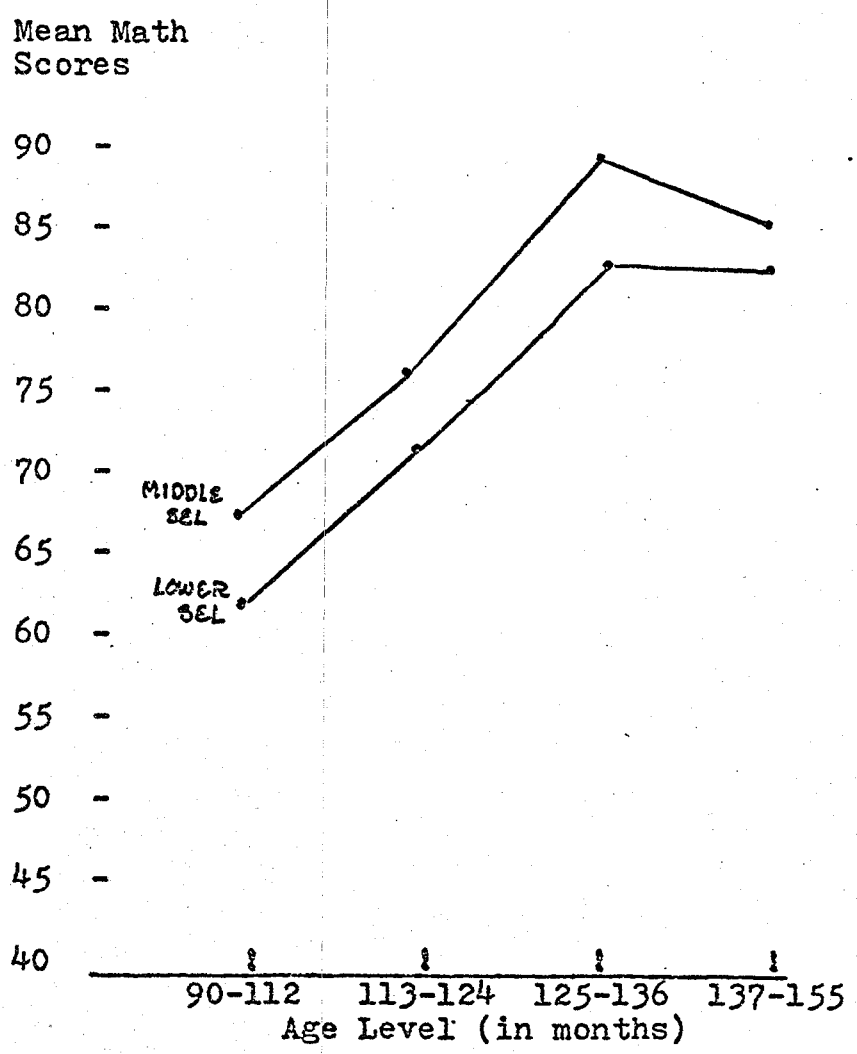

Figure 6

Math Achievement by Age Level and Socioeconomic Level

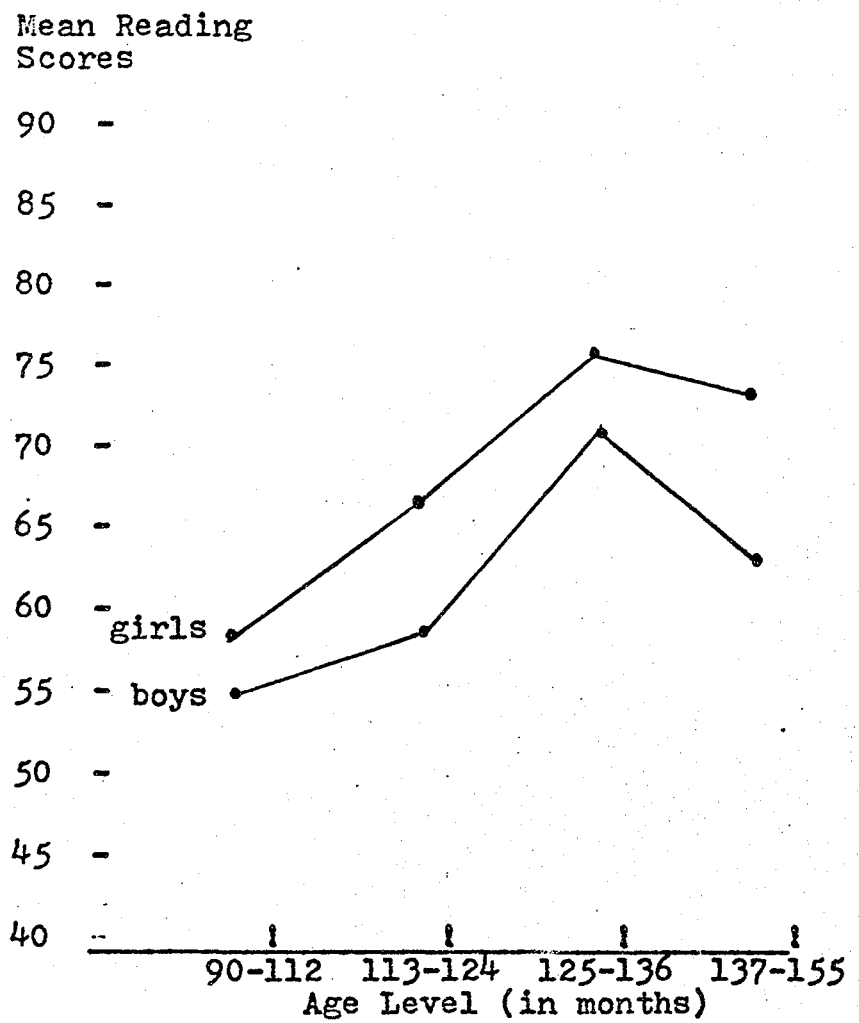

Figure 7

Reading Achievement by Gender And Age Level

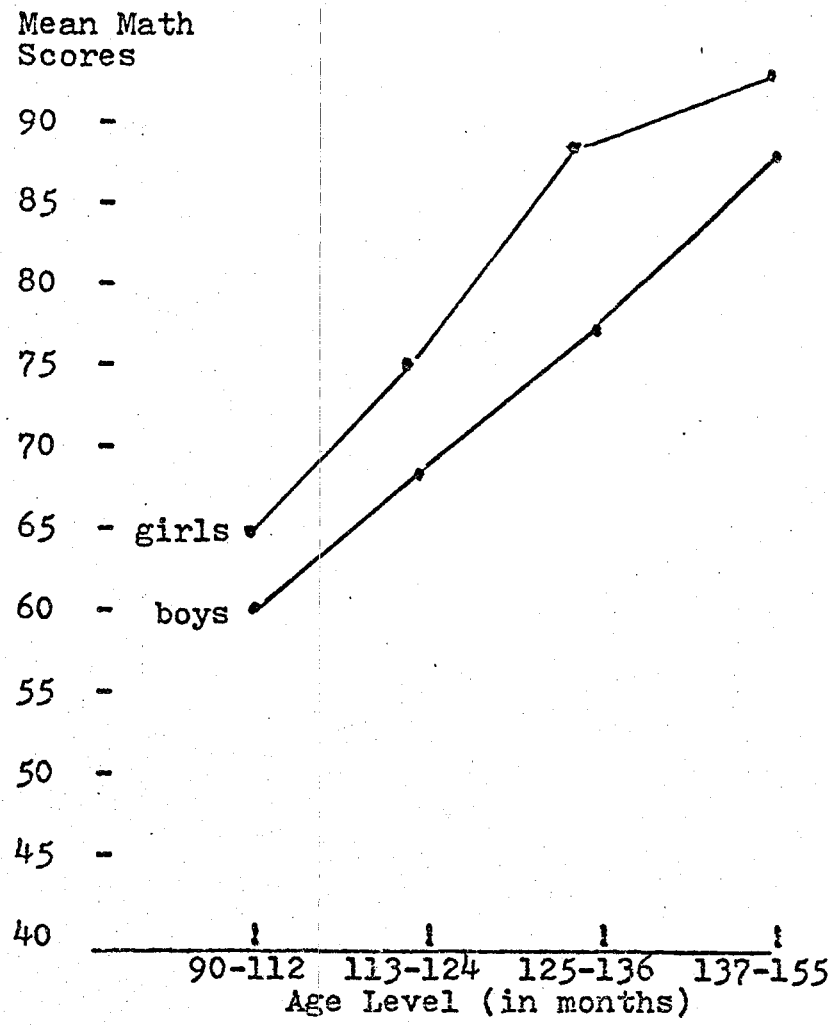

Figure 8

Math Achievement by Gender And Age Level

the widely assumed saliency of PLC as a learning factor is upheld for the Filipino-American sample subjects of this study.

2. The analysis of PLC-Achievement relationship by age levels revealed a progressive magnitude of correlational significance with age. The highest correlations, therefore, occur in the last age group.

3. An unexpected finding was the pattern of PLC - achievement relationship demonstrated by the first age range (the youngest set), which runs counter to the predicted direction. The hypothesized correlational pattern links higher achievement with Internal control and lower achievement with External control. While this type of relationship was observed in the three older age groups, the reverse was displayed by the youngest group, where the highest achievers were the Externals, the lowest were the Internals.

4. Of the three interaction hypotheses, only the PLC - SEL interaction was substantiated and only for the reading achievement area. Significant PLC - achievement correlations were demonstrated by the Pearson correlational data among the higher SEL in both reading and math but not for the lower SEL. The correlational coefficient failed to reach statistical significance however, although a similar correlational pattern is shown by the lower class group.

5. Neither gender nor generational status showed significant interaction with perceived locus of control.

Significant PLC - achievement correlations emerged for almost all gender and generational status groups. The only two exceptions were in the math achievement for boys and for the second generation set. By and large, therefore, neither gender nor generational status differentiated the relationship of control orientation and achievement.

The following results were obtained for the minor hypotheses which are correlational predictions between locus of control and the demographic variables gender, generational status, age, and socioeconomic level.

1. Gender and generational status failed to gain significance as PLC associative factors.

2. Significant relationship between age and perceived locus of control was revealed in the predicted direction of Internality developing with age.

3. Socioeconomic level was demonstrated to be the most effective indicator of perceived locus of control among the four variables considered. The middle class group displayed higher Internal scores than the lower class children. Moreover, the middle class group evidenced distinctive progression toward Internality with each age level while the lower class children remained in a similar PLC level.

Additional non-hypothesized relationships were revealed. Socioeconomic status and gender turned out to be powerful achievement predictors among the other variables. The higher SEL group and the girls were favored in this

respect in both reading and math and in virtually all age levels.

In sum, this study lends support to the theoretical assumption that perceived locus of control is importantly related to learning. The relationship was found to pervade subpopulations of gender, generational status, and all age levels except the youngest. Only in the various socio-economic levels was the relationship differentiated. The higher SEL group is decidely at an advantage: it is where greater Internality resides, it is where Internality is demonstrated to be a trait of learning consequence.

The next chapter presents a summary of this study. Interpretative discussions of the findings presented in this chapter are also given. Conclusions, educational implications, and recommendations for future PLC research form the conclusive portions of the last chapter.

Chapter 5

SUMMARY, DISCUSSION OF FINDINGS, IMPLICATIONS, AND RECOMMENDATIONS

SUMMARY

A problem that has incessantly plagued educators and psychologists is the unequal performance of students in schools. Over the years, the concept of equal educational opportunity has varied in interpretation. More recently, the emphasis has shifted from equalizing school facilities and provisions (school input) to equalizing educational achievement (school output). Partly responsible for this change was the Equal Educational Opportunity Report (EEOR) by Coleman and his associates. One of the EEOR's major conclusions was that the causes of achievement discrepancies did not reside in unequal access to resources but in the variations in the background experiences of the pupils. The message of the Coleman report was clear: it is the function of schools to make school achievement independent of the social and home background of the pupils in order to gain equality of learning output.

Another conclusion of the EEOR which has generated considerable interest in the educational field is that the attitudinal factor, "control of environment," was found to

be a key variable in explaining the achievement deficiencies of certain minority groups (Mexican-Americans, Puerto Ricans, Blacks, and American Indians). This personality dimension was found to be the single most powerful factor in predicting achievement of the minority students.

Review of the Literature

Perceived locus of control (PLC) has assumed considerable significance in recent years in discussions of individual differences. An extensive body of research has appeared in the last decade exploring the dynamics of PLC as a personality construct that is importantly related to diverse forms of behavioral and attitudinal situations. In education, it has been evaluated primarily as an independent variable predictive of achievement and achievement-related behavior. These research efforts were generally undertaken within the framework of Rotter's social learning theory from which this construct is derived.

Rotter conceptualized reinforcement expectancy as a generalized tendency affecting behavioral decisions in a wide variety of life situations. His basic formula for the potentiality of behavior occurrence include: (a) the value strength of the reinforcement to the individual; (b) the expectancy that the behavior will lead to reinforcement; and (c) the situation under which the reinforcement was previously experienced. In this study, reinforcement expectancy is labeled "perceived locus of control" (PLC).

Perceived locus of control describes the individual's belief regarding the source of negative and positive reinforcements that he encounters in his life. An individual is viewed as having Internal locus of control (ILC) if he appraises his failures and successes as contingent on his own behavior, hence within his personal control. He is said to have External locus of control (ELC) if he appraises reinforcements as beyond his power to control; in other words, he fails to see the contingency between his behavior and the consequences of that behavior. The ILC, then, represents the expectancy that he possesses the power to cause desired events and avert undesired ones; however, the ELC believes that the events in his life largely depend on luck, chance or the determination of other persons.

The research literature reviewed for this study pertains to: (a) the relationship of locus of control orientation and school achievement and variables affecting this relationship; and (b) the potential variable correlates of PLC. Considered jointly, empirical data confirm the EEOR finding that PLC is a learning variable of consequence. Where meager or non-support was found, various explanations have been proposed:

1. differences in the characteristics of the population sample,

2. situational variations, e.g., non-concordance between the teachers' and pupils' perception of appropriate

learning attitude; differential attitudes of teachers for different students,

3. limitations of the measuring instruments, e.g., excessive generality, and inconsistencies in the operational conceptions.

Research with various PLC measures suggest that control orientation is a function of age (Internality increasing with age) and of socioeconomic level (lower class associated with Externality, and the middle class associated with Internality). Results have been equivocal on the variables of gender although girls are more often found to be Internal than boys, and to be less likely to show PLC-achievement relationship. Generational status has thus far received little attention as a PLC mediating variable. As a factor representing cultural variations, ethnicity might be somewhat akin to generational status which served as a measure of degree of acculturation in this study. Investigations on ethnicity fail to show consistency, a probable indication of a need to validate the PLC construct across various cultural and ethnic groups.

Purpose of the Study

This investigation sought to verify and extend research information relative to perceived locus of control on a population sample composed of Filipino-American elementary students. The focal purpose was to reinvestigate the much documented relationship between academic achievement

and perceived locus of control. Additionally, the study probed into the possible interactions among PLC, gender, generational status (GS) and socioeconomic level (SEL) as they relate to academic achievement. The problems of secondary interest related to the potential correlates of control orientation: gender, age, GS, and SEL.

Hypotheses

The eight null hypotheses formulated fall into three categories: (a) the PLC-achievement hypotheses; (b) the interaction hypotheses; and (c) the PLC correlates hypotheses. The PLC-achievement hypothesis (Hypothesis One) predicted absence of relationship between perceived locus of control and achievement in reading and math. The interaction hypotheses (Hypotheses Two, Three, and Four) predicted lack of interaction between perceived locus of control and the demographic variables gender, generational status, and socioeconomic level on reading and math achievements. The PLC-correlates hypotheses (Hypotheses Five, Six, Seven, and Eight) predicted lack of relationship between perceived locus of control and age, gender, generational status, and socioeconomic level.

Population, Data, and Instrumentation

The subjects of this study were Filipino-American elementary students in Stockton Unified School District. The sample consisted of 154 children in grades 3, 4, 5, and 6, representing categories of age, gender, generational

status, and socioeconomic level. The demographic data were derived from the parents' information sheets and from school records. The school achievement indicators used were the results of the Metropolitan Achievement Tests (MAT) in reading and math administered in the Stockton Unified Schools in the spring of 1978. The Children's Nowicki-Strickland Internal-External Scale, administered in October and November of the same year, provided the locus of control measures which served as the basis for the PLC categories Internal locus of control (ILC), Medium locus of control (MLC), and External locus of control (ELC). The two socio-economic categories, middle and lower class, were determined by the Index of Status Characteristics (ISC) by Warner, et al.

Research Methodology

A series of 3-way ANOVAS were employed to test the PLC-achievement hypotheses and the interaction hypotheses. The Pearson Correlation procedure was used to test for partial correlations in the subpopulations of age, gender, generational status, and socioeconomic level. The PLC correlates hypotheses were tested by using two 2-way ANOVAS. PLC-age correlations and PLC-SEL correlations were computed using the Pearson Correlation procedure.

Summary of Findings

The four major hypotheses tested in this study were concerned with the main effect and interaction effects of

PLC, gender, GS, and SEL on achievement. The first hypothesis predicting relationship between PLC and achievement was substantially supported at the significance level $p < .005$ for reading and $p < .002$ for math achievement. Control expectancy explained a larger portion of achievement variance than did the three other classification variables gender, GS, and SEL.

The three other major hypotheses predicted interaction of PLC with socioeconomic level (Hypothesis Two); gender (Hypothesis Three); and generational status (Hypotheses Four). Only the PLC-SEL interaction achieved significance. The data obtained revealed that among the middle class subjects, control orientation correlated significantly with achievement in the expected direction, i.e., Internality linked with higher achievement. No relationship was discerned for the lower SEL subjects. It would seem that Internality results in achievement gains for the middle class but not for the lower class children.

Neither gender nor generational status showed significant interaction with PLC. The Pearson Correlational data indicated that the expected PLC-achievement correlation permeated almost all gender and GS categories at the selected significance level of $\alpha = .05$. These factors do not appear to differentiate the PLC-achievement relationship.

Significant correlations were obtained for two of the four minor hypotheses: Hypothesis Seven predicting

PLC-age relationship, and Hypothesis Eight, predicting PLC-SEL relationship. These results validate the theoretical assumptions that Internal control orientation is a function of age and higher socioeconomic level. Non-significant correlations were found for gender and generational status.

The PLC-achievement correlational computations by age level subpopulations disclosed an interesting age level variation. The nature of relationship predicted ascribes higher achievement for ILC's and the reverse for ELC's. This tendency did obtain for the three older age groups. Interestingly, the opposite direction appeared for the youngest group, the ILC's showing the poorest, and the ELC's the highest achievement scores.

DISCUSSION OF FINDINGS

The PLC-Achievement Relationship

In theoretical discussions, Rotter cautioned that expectancies of greater specificity may be operating in academic achievement situation, for which the PLC scales may not be fully adequate.[1] Even with this anticipated limitation however PLC construct exhibited a creditable main effect value on both reading and math achievements.

---

[1] Julian B. Rotter, "Generalized Expectancies for Internal Versus External Control of Reinforcement," Psychological Monographs: General and Applied, LXXX (1966), 27.

This finding provides credence to the notion that perception of control source is an attribute to contend with in efforts to raise academic achievement.

The surprise finding was the reverse PLC-achievement relationship displayed by the youngest set, that is, the ELC's showed superiority of performance over the MLC's and the ILC's. From one point of view, this opposing performance by the youngest age group may be seen as an outcome of unreliable response to the CNS-IE scale by these children. The language and contextual content of the scale may have been too difficult for these youngsters to make meaningful response. Spurious PLC designations would have resulted, obscuring genuine PLC-achievement relationships. It is easy to see for instance, how negatively stated questions such as the example below, could be ambiguous for eight year olds:

"Do you feel that most of the time, it doesn't pay to try hard because things never turn out right anyway?"

The expected External answer to this item is "yes". Some children however might answer "no" with the same External meaning in mind (No, it doesn't pay to try hard). The plausibility of this explanation has some basis as observed by this writer that in the process of testing, the third graders were generally passive, inattentive and too hasty in responding, in contrast to the greater deliberation demonstrated by the older children.

From another perspective, the unexpected pattern could be interpreted as resulting from the teaching-learning situation. In the lower grades where the basics of reading and math receive emphasis, characteristics associated with Externals probably are encouraged and prove more productive, (e.g., obedience, outer-directness, conformity). On the other hand, Internal characteristics (autonomy, inner-directness, initiative) may prove counter productive. Such classroom circumstances then would be more propitious for Externals than for Internals. The overall picture, however, does not conflict with the theoretical notion that Internality as well as its association with achievement develops with age.

A discontinuity of the linearity of the PLC-achievement relationship is likewise observed in the inconsistent position taken by the mean scores of the Medium Locus of control group. They score lower than the ELC's in one reading age level (Table 7) and in three math age levels (Table 9). By virtue of the middle position of the MLC's, the inconsistency and ambiguity were to be expected. There is the probability, however, that this incoherence could be an artifact of the PLC classification. The division points of the three PLC categories had been based on the PLC mean score of this homogeneous ethnic group so that the cut-off point for Externals may have been too low. With a mean derived from a heterogeneous group including Anglo-Americans it is likely that some MLC's would be

absorbed into the ELC group. In some studies, only the extreme scores (excluding medium locus of control) are considered to obtain more definitive results. Had this been done, the findings of this study could have presented an even stronger case for perceived locus of control orientation.

Gender

In spite of prevailing evidence of higher internality for girls than for boys, the ANOVA analysis failed to find gender as significantly related to perceived locus of control. Neither was there support of the predominating finding that girls' control orientation is less related to achievement than boys'. The expected negative correlation occurred for both genders with slightly greater significance level for girls. It appears that among both girls and boys, belief in personal responsibility for reinforcement actively operates toward increased achievement.

Generational Status

It was predicted in this study that the first generation student would be assessed as External and each subsequent generation increasingly Internal. Underlying this assumption are some Filipino cultural characteristics which are amenable to cultivating External locus of control, e.g., prolonged child-rearing, mutual dependence and obligation among family members; sanctioning such qualities as docility, obedience, and deference to elders and persons of authority

and prestige. The results of this study, however, found no generational status differentiations in PLC classification. The number of Internals and Externals were not significantly different from one generation to another. One interpretation may find basis on the high value Filipinos accord to education an attitude which is usually instilled in the children. Possibly, school-related items in the PLC scale were eliciting Internal responses to counterbalance External responses. An analysis of the loading of school-oriented items bear out this interpretation. It may be this canceling effect of the heavy Internal loading of academically oriented items that rendered generational status as a non-significant PLC variable.

Number of responses			
External	Internal		Items
6	148	(4)	Most of the time, do you feel that getting good grades means a great deal to you?
12	142	(6)	Do you believe that if somebody studies hard enough he or she can pass any subject?
19	135	(22)	Do you feel that whether you do your homework has much to do with what kind of grades you get?
40	104	(37)	Do you usually feel it is almost useless to try in school because most other children are just plain smarter than you are?
20	134	(40)	Do you think it is better to be smart than lucky?

On the other hand, the absence of correlation could also be attributed to inadequacy of generational status as a measure of degree of acculturation. By this criterion, a recent arrival from the Philippines would belong to the same GS as one who came here as an infant. The disparity of length of exposure to this culture makes a similar classification obviously inaccurate especially if the students are in the higher grades. The PLC-generational status relationship could be worth pursuing using an acculturation scale and/or data on length of residence in this country.

There was no significant interaction, either, between PLC and generational status. The Pearson correlation coefficients (Table 12) show all PLC-achievement correlations for generational status to be significant except one, showing that control orientation and achievement relationship pervade almost all categories of generational status.

Socioeconomic Status

The significance of socioeconomic level as a correlate of PLC finds many parallels in research literature. Almost invariably, low SEL subjects are found to be more Externally oriented than their middle-class peers. The causal relationship between achievement and PLC is not clear, but it may well be a circular one, for the explanations often given for achievement lag among low SEL children are also relevant for explaining their lack of Internality.

Concomitants of poverty are usually mentioned: underexposure to learning experiences in the home, lack of the cluster of motivational factors such as parents' interaction and material incentives, meager verbal communication. Rotter has said the history of validation or non-validation of experiences determines an individual's reinforcement expectancies. For the children of the poor, non-validation comes not only from their repeated frustrations but from being constant witness to their parents frustrations, in the long run, they adopt the pessimistic view that effort does not bring rewards.

While there is concurrence about the PLC-SEL correlation, less agreement obtains regarding the role of SEL as a differentiating factor in the PLC-achievement relationship. Coleman found consistency of correlation among ethnic minorities (who are also classified disadvantaged on the set of criteria used) and lack of correlations among white Americans. The reverse is found in this and other studies (Bartel, Battle, and Rotter, Butterfield). Data obtained in this investigation showed higher SEL children as growing progressively Internal year by year, while their lower-class counterparts stay relatively similar in control orientation. More importantly, control beliefs of middle-class children are shown to vary systematically with achievement while the control orientation of the lower-class children appears to be unrelated to achievement. Possibly, because of the more gratifying circumstances to which they are

exposed, control expectancies of middle class children stabilize earlier and operate more freely.

It has been suggested that the schools themselves exert the differentiating effect on the PLC-achievement relationships among different social classes. An indictment comes from Bartel who states: "The school experience appears to have differential effects-facilitative versus inhibitive-for the development of internal control depending on the child's social class."[2] Her contention is borne out by evidence in her study that the teachers' judgment of the children's social class correlated more highly with the teachers' achievement rating than did the objective social class measure. Additionally, the teachers' achievement rating correlated more highly with the teachers' rating of social class than did standardized achievement scores. Low teacher expectations on the low SEL children, regardless of control, could be the root of the lower class Internal's non-achievement. Under these circumstances, the obstacles to learning are not just a matter of children's perception or belief, but are real, predictable and quite beyond their control.

Another interpretation is proferred by Butterfield, who explains non-correlation between PLC and achievement

---

[2]Nettie R. Bartel, "Locus of Control and Achievement in Middle Class and Lower Class Children," (unpublished Ph.D. dissertation, Indiana University, 1968), p. 69.

among his subjects as probably caused by a discrepancy between the teachers' and students' conceptions of appropriate achievement behavior.[3] Internal individuals' non-conforming, autonomous attitudes would assuredly rate low to a teacher who regards conformity and obedience as ideal for teaching and learning.

IMPLICATIONS FOR EDUCATION

A finding in this study that has previously received considerable documentation is that the mediating mechanisms operating among the disadvantaged social class facilitate External locus of control and extinguish Internal control beliefs. Withdrawal, passivity, and powerlessness become the products of the various concomitants of low socioeconomic level: impoverished surroundings, repeated exposure to rejection, and frequently, social stigma and discrimination. Logically then, strategies for cultivating Internal control beliefs should be oriented toward success and self-actualization, accentuating positive rather than negative feedback. Unlike Internal individuals who can function under both negative and positive situations, Externals have generally been shown to be more vulnerable in the face of challenge and failure. Since

---

[3]E. C. Butterfield, "Locus of Control, Test Anxiety, Reactions to Frustration and Achievement-Attitudes," Journal of Personality, XXXII (September, 1964), 355-370.

Externally oriented individuals fail to recognize contingencies between their behavior and the results of that behavior, procedures for intervention should emphasize cause-effect, or behavior-reinforcement relationships. Some guidelines for treatment suggest themselves:

1. Begin with goals within the children's competency level and proceed at a pace that will ensure successful achievement;

2. Make the goals and achievement of goals apparent in a visible, tangible manner;

3. Maximize positive feedback; and

4. Provide opportunities for manipulating the environment and for making responsible, independent decisions.

A number of research studies have explored ways of altering locus of control orientations. Their reported positive results provide additional clues toward fostering Internality. The use of Advance Organizers was tried by Segal to provide optimal anchorage for students.[4] One main effect was increased Internality among Externally controlled, low SEL students. Crandall obtained dramatic results with the use of Computer-Assisted Instruction

---

[4]Cecile P. Segal, "Effect of an Advance Organizer upon Learning for the Sixth Grade Children Maintaining an External Locus of Control Orientation," (Paper presented at the Annual Meeting of the American Education Research Association, Chicago, Ill., April, 1974).

CAI).[5] The author attributes success to the cause and effect mechanism of the CAI, the immediate feedback, and specificity of instructions. Some children may find it less embarrassing to make errors with a machine than with a teacher. It must be cautioned, however, that human interaction is too important to be deemphasized. Additionally, through structured camping experience Nowicki and Barnes met their objectives of making students feel more in control of events affecting them and to become more self-confident.

Enough empirical evidence is available to sustain the notion that the teachers' own attitudes have a considerable bearing on the differential development of control expectancies and the behavior concomitant to these expectancies. Bartel's study showed how the teacher's perception of the child's social class drastically affects how she evaluates him.[6] This recalls Butterfield's contention that lack of PLC-achievement correlation could be an outcome of non-congruence between the teachers' and the students' control beliefs. Obviously, an Internal teacher who believes in his own ability to affect those around him in a facilitative manner would more likely produce achievement gains than an External teacher.

---

[5]Nelson D. Crandall, "CAI: Its Role in Education of Ethnic Minorities," (Paper presented at the Association for the Development of Competency Based Instructional System, Santa Barbara, CA, January, 1976).

[6]Bartel, op. cit., pp. 80-81.

Important as it is, the assessment of teacher attitudes is problematic since one can quite sincerely profess to a certain attitude and yet obliviously contradict this in behavior. The current trend toward intercultural awareness very likely helps modify many misconceptions about various ethnic groups. Indubitably, the teachers' understanding of the students' unique characteristics and needs is of vital importance in helping them succeed academically. The teacher's perceptions of his own attitudes are no less important. As the central agent for reinforcement in the classroom, a teacher's belief in what a student can achieve and how he should achieve is crucial.

A salient suggestion is made by Reynolds that particular teaching methods and teaching climates may be differentially preferred by Internals and Externals.[7] Germane to this, Baron and Ganz demonstrated that efficacy of rewards was moderated by variations in locus of control orientations.[8] Internals were shown to be more efficient under conditions of intrinsic feedback. On the other hand, with extrinsic feedback, the Externals were superior in performance to Internals. With combined conditions, control orientations did not differentiate performance.

---

[7]Carl Reynolds, "Correlational Findings, Educational Implications and Criticism of Locus of Control Research," Journal of Black Studies, Vol. 6, No. 3 (March 1976), 243.

[8]Reuben M. Baron and R. L. Ganz, "Effects of Locus of Control and Type of Feedback on the Task Performance of Lower Class Black Children," Journal of Personality and Social Psychology, XXI (March, 1972), 124-130.

An implication to be gleaned from the foregoing discussions in that it is unequal to treat unequals as equals. A sympathetic perception of different learning needs is a necessary prerequisite to restoring to the External individuals, the valuing of skill and its rewards, alertness to environmental aspects useful for his success, and belief in his efficacy in controlling his own destiny.

RECOMMENDATIONS FOR FUTURE RESEARCH

Research efforts on perceived locus of control assumes more than theoretical interest at this time when innovative programs are constantly being devised to ameliorate the problems causing achievement lag among students of low socioeconomic level and ethnic minority groups. The following ideas for future research are suggested: (1) a replication of this study on an ethnically heterogeneous population; (2) the relationship of PLC with other psychosocial variables; (3) specific antecedents of PLC; (4) PLC-achievement relationship under situational variables; (5) intervention strategies for altering control orientation.

A Replication of this Study on a Heterogeneous Group

A replication of this study on an ethnically-diverse population would be a worthwhile endeavor especially in a multiethnic school district. A mixed ethnic subject population would provide a wider-based norm for PLC classification and permit more precise comparisons. Rather than

rely on generational status as the sole predictor of degree of acculturation, other acculturation scales could be used in combination with it.

The positive performance in this study of the CNS-IE scale as a measure of PLC as a generalized tendency, probably argues against breakdown into situationally specific measures. Possibly, however, the abbreviated versions which contain only items showing the greatest discriminative power could yield more accurate PLC categories and greater consistency across age levels. Additionally, the CNS-IE scale should probably be used only for children ten years of age or older. Although the authors state that this form is appropriate for the third grade level, perhaps for the minority students, the pre-school and primary form in the authors' life-span series would be more suitable.

PLC and Psycho-social Variables

The construct validity of PLC is reaffirmed in this study. However, contradictory findings do occur to suggest that it would be too simplistic to assume straightforward and clear-cut relationships between behavior and its correlative factors. What many studies manifest is that a complex network of factors interact in multiple ways. Predictions regarding perceived locus of control can be maximized if this construct is investigated with variables other than the demographic, such as: field dependence-independence; cultural beliefs and values; self-concept; motivational preferences; level of aspiration, etc.

PLC and its Antecedents

Clarifications are needed on specific antecedents of control orientations and on factors leading to the generalization of these orientations. In this connection, a breakdown of home factors and socioeconomic level as PLC variables have often been suggested so that more meaningful clues for remediation may be derived. More importantly, leads on antecedents of PLC would provide directions for prevention of unproductive control beliefs.

PLC and Situational Variables

Research investigations on PLC-achievement relationship under various situational variables may be expanded in various directions:

1. PLC-achievement relationships among different ethnic groups in segregated versus desegregated schools;

2. PLC-achievement relationship among non-English speakers or limited English speakers in bilingual education programs versus regular total English programs;

3. PLC-achievement relationships under situations of congruence-versus non-congruence of teacher's and pupils' control orientations.

4. PLC-achievement relationship under various degrees of teacher-pupil interaction.

Intervention Strategies

For the practitioners in the field, results of investigations on intervention strategies will provide

tactable and useful information for classroom application. The study by Segal, for instance, on differentiated feedback for Internal and External individuals, explicitly suggests ways of structuring experineces to enhance the more advantageous control orientation. By discovering techniques for altering control beliefs, we may come closer to Coleman's counsel of making academic achievement independent of the social background of pupils to the end that equality of school output may be gained.

BIBLIOGRAPHY

BIBLIOGRAPHY

Periodicals

Baron, Reuben M., and R. L. Ganz. "Effects of Locus of Control and Type of Feedback on the Task Performance of Lower Class Black Children." Journal of Personality and Social Psychology, Vol. 21, No. 1 (January, 1972).

Battle, Esther, and I. B. Rotter. "Children's Feelings of Personal Control as Related to Social Class and Ethnic Groups." Journal of Personality, Vol. 31 (December, 1963).

Butterfield, E. C. "Locus of Control, Test Anxiety, Reactions to Frustrations, and Achievement Attitudes." Journal of Personality, Vol. 32 (September, 1964).

Brecher, Marilyn, and F. L. Denmark. "Internal-External Locus of Control and Verbal Fluency." Psychological Reports, Vol. 25 (1969).

Crandall, Virginia, W. Katkovsky, and V. Crandall. "Children's Beliefs in their Own Control of Reinforcements in Intellectual-Academic Achievement Situations." Child Development (36): (1965).

Ducette, Joseph, and S. Wolk. "Locus of Control and Levels of Aspiration in Black and White Children." Review of Educational Research, Vol. 42, No. 4 (February, 1972).

Epstein, Ralph, and S. S. Komorita. "Self-Esteem, Success-Failure, and Locus of Control in Negro Children." Developmental Psychology, Vol. 4, No. 1 (January, 1971).

Farley, Frank H. "Predicting Locus of Control in Black and White College Students." Journal of Black Studies, VI (March, 1976).

Garza, Raymond T., and R. E. Ames, Jr. "A Comparison of Anglo- and Mexican-American College Students on Locus of Control." Journal of Consulting and Clinical Psychology, Vol. 42, No. 6 (December, 1974).

Gigliotti, Richard J. "Residential Stability and Academic Sense of Control." Journal of Black Studies, Vol. 6, No. 3 (March, 1976).

Gozali, Harriet, et al. "Relationship Between the Internal-External Construct and Achievement." Journal of Educational Psychology, LXIV (1973).

Grebler, Leo, J. W. Moore, and R. C. Guzman. "The Mexican American People." The Free Press, New York (1970).

Gruen, Gerald E., and D. R. Ottinger. "Skill and Chance Orientation as Determiners of Problem-Solving Behavior in Lower and Middle-Class Children." Psychological Reports, XXIV (1969).

Gurin, Patricia, G. Gurin, R. Lao, and M. Beattie. "Internal-External Control in the Motivational Dynamics of Negro Youths." Journal of Social Issues, Vol. 25, No. 3 (Summer, 1969).

Guttentag, Marcia, and T. Klein. "The Relationship Between Inner Locus of Control and Achievement in Black Middle School Children." Educational and Psychological Measurement, Vol. 36, No. 4 (Winter, 1976).

Houston, Kent B. "Control Over Stress, Locus of Control, and Response to Stress." Journal of Personality and Social Psychology, Vol. 21, No. 2 (1972).

Hsieh, T., T. Shybut, and E. D. Lotsof. "Internal Versus External Control and Ethnic Group Membership." Journal of Counseling and Clinical Psychology, Vol. 33 (May, 1969).

Joe, V. C. "Review of the Internal-External Control Construct as a Personality Variable." Psychological Reports, Vol. 28 (1971).

Jorgensen, Carl C. "Internal-External Control in Academic Achievement of Black Youth: A Reappraisal." Integrated Education, XIV (November/December, 1976).

Kinder, Donald R., and L. G. Reeder. "Ethnic Differences in Beliefs about Control." Sociometry, Vol. 38, No. 2 (June, 1975).

Lefcourt, Herbert M. "Internal Versus External Control of Reinforcement: A Review." Psychological Bulletin, LXV (April, 1966).

Lefcourt, Herbert M. "Recent Developments in the Study of Locus of Control." Progress in Experimental Personality Research, VI, New York: Academic Press, 1972.

MacDonald, A. P. Jr. "Internal-External Locus of Control: A Promising Rehabilitation Variable." Journal of Counseling Psychology, Vol. 18, No. 2 (March, 1971).

Mayeske, George W. "Educational Achievement Among Mexican Americans: A Special Report from the Educational Opportunities Survey." Integrated Education, VI (January/February, 1968).

McGhee, Paul E., and V. C. Crandall. "Beliefs in Internal-External Control of Reinforcements and Academic Performance." Child Development, XXXIX (March, 1968).

Milgram, Norman A. "Locus of Control in Negro and White Children at Four Age Levels." Psychological Reports, Vol. 29 (October, 1971).

Murray, Saundra Rice, and M. T. Shuch. "Perceiving the Causes of Success and Failure: Sex, Race, and Motivational Comparisons." Journal of Consulting and Clinical Psychology, IV (December, 1975).

Nowicki, Stephen, Jr., and J. Barnes. "Evaluation of the Camp Project for Seventh, Eighth, and Ninth Grade Pupils." Research and Development Report, Vol. 4, No. 9 (Summer, 1970).

Nowicki, Stephen, Jr., and B. R. Strickland. "A Locus of Control Scale for Children." Journal of Counseling and Clinical Psychology, Vol. 40, No. 1 (1973).

Pentecoste, Jospeh. "An Experiment Relating Locus of Control to Reading Success for Black Bright Underachievers." Reading Improvement, Vol. 12, No. 2 (Summer, 1975).

Reynolds, Carl H. "Correlational Findings, Educational Implications and Criticisms of Locus of Control Research: A Review." Journal of Black Studies, Vol. 6, No. 3 (March, 1976).

Rotter, Julian B. "External Control and Internal Control." Psychology Today (June, 1971).

Scott, Richard R. "Attribution of Internal Control." Journal of Black Studies, Vol. 6, No. 3 (March, 1976).

Shaw, Ralph L., and N. P. Uhl. "Control of Reinforcement and Academic Achievement." The Journal of Educational Research, LXIV (January, 1971).

Throop, Warren F., and A. P. MacDonald Jr. "Internal-External Locus of Control: A Bibliography." Psychological Reports, Vol. 28 (1971).

Vasquez, James A. "Locus of Control, Social Class and Learning." Los Angeles: National Dissemination and Assessment Center, UCLA, Bilingual Education Papers Series (1978).

Watson, David, and E. Baumal. "Effects of Locus of Control and Expectation of Future Control Upon Present Performance." Journal of Personality and Social Psychology, Vol. 6 (1967).

Weiner, Bernard, H. Heckhausen, W. Meyer, and R. Cook. "Causal Ascriptions and Achievement Behavior: A Conceptual Analysis of Effort and Reanalysis of Locus of Control." Journal of Personality and Social Psychology, XXI (February, 1972).

Witkin, Herman A. and J. W. Berry. "Psychological-Differentiation in Cross-Cultural Perspective." Journal of Cross-Cultural Psychology, Vol. 6, No. 1 (March, 1975).

Single-Volume Works

Commager, Henry Steele. "The School as a Surrogate Conscience." Readings in Education 76/77. Guilford, Connecticut: Duskin Publishing Group, Inc., 1976.

Gee, Emma, ed. Counterpoint. Los Angeles, California: Asian American Studies Center, Resource Development and Publications, UCLA, 1976.

Gordon, Edmund W. "Toward Defining Equality of Educational Opportunity." On Equality of Educational Opportunity, Mosteller and Moynihan, eds. New York: Random House, 1972.

Jessor, R., et al. Society, Personality and Deviant Behavior. New York: Holt, 1968.

Mosteller, Frederick and D. Moynihan (editors). On Equality of Educational Opportunity. New York: Random House, 1972.

Munoz, Alfredo. The Filipinos in America. Los Angeles: Mountainview Press, Inc., 1971.

Ornstein, Allan C. "An Overview of the Disadvantaged: 1900-1970." Rethinking Educational Opportunity, Kappan and Walberg, eds., Berkeley: McCutchen Publishing Co., 1974.

Rotter, Julian B. Social Learning and Clinical Psychology. New York: Prentice-Hall, 1954.

Smith, Marshall. "Equality of Educational Opportunity: The Basic Findings Reconsidered." On Equality of Educational Opportunity. New York: Random House, 1972.

Strodbeck, F. L. "Family Interaction, Values, and Achievement." Talent and Society. New York: Van Nostrand, 1958.

Warner, Lloyd, M. Meeker, and E. Eells. Social Class in America. New York: Harper and Row, Publishers, 1960.

Government Documents

Coleman, James S., et al. Equality of Educational Opportunity. Superintendent of Documents, Catalogue No. FS 5.238:38001. Washington: U.S. Government Printing Office, 1966.

San Joaquin County Community Development Program. Income Data for Metropolitan Stockton, 1969 & 1975. Stockton, CA.: Feb. 1973.

U.S. Bureau of Census. Statistical Abstract of the United States: 1977, 98th ed. Washington, D. C., 1977.

U.S. Commission on Civil Rights, Report II: The Unfinished Education. Washington, D. C. (1971).

Other Sources

Bartel, Nettie Rose. "Locus of Control and Achievement in Middle Class and Lower Class Children." Unpublished doctoral dissertation, Indiana University, 1968.

Cervantes, Robert A. "Self Concept, Locus of Control, and Achievement in Mexican American Pupils." A paper presented at the Third Annual Conference on Bilingual-Bicultural Education, San Francisco, California, February, 1976.

Chambers, Dewey W., and Shirley Jennings. "The Achievement Patterns of Eight Linguistic Sets of Children in a Pluralistic Community." Monograph No. 1, Bureau of Research and Field Services, School of Education, University of the Pacific (Fall, 1975).

Crandall, Nelson D. "CAI: Its Role in Education of Ethnic Minorities." A Paper presented at the Association for the Development of Competency Based Instructional System, Santa Barbara, California, 1976.

Franklin, R. D. "Youth's Expectancies about Internal Versus External Control of Reinforcement Related to the N Variables." Unpublished doctoral dissertation, Purdue University, 1963.

Graves, T. C. "Time Perspective and the Differed Gratification Pattern in a Tri-Ethnic Community." Research Report No. 5, Tri Ethnic Research Project, University of Colorado, 1961.

Harrison, Othello A. "Locus of Control and Problem Solving Abilities of Young Black Children." A paper presented at the Conference on Empirical Research in Black Psychology II, Teachers College, Columbia University, New York, 1975.

Pepper, Roger S., and J. A. Drexler Jr. "Relationship Among Reading Performance, Locus of Control and Achievement for Marginal Admission Students." A paper presented at the meeting of the North Central Reading Association, Bloomington, Indiana, October 29, 1971.

Segal, Cecil P. "Effects of Advance Organizer Upon Learning for Sixth Grade Children Maintaining an External L C Orientation." A paper presented at the Annual Meeting of the American Educational Research Association, Chicago, Illinois, April 15-19, 1974.

Shaw, Ralph L. "Relationship Between Locus of Control Score and Reading Achievement of Black and White Second Grade Children from Two Socioeconomic Levels." A paper presented at the Southeastern Psychological Association Convention, New Orleans, LA., February, 1969.

Stephens, Mark, and P. Delys. "Subcultural Determinants of Locus of Control Development." A paper presented at the Midwestern Psychological Association Convention, Detroit, Michigan, May, 1971.

Stockton Unified School District. Ethnic-Racial Report. Stockton, CA., 1977.

Stone, Paula C., and R. Ruiz. "Race and Class Differential Determinants of Underachievement and Underaspiration Among Mexican Americans." A paper presented at the Annual Convention of the American Psychological Association, September, 1971.

Vogel, Neva Rose. "An Analysis of the Relationship Between Perceived Locus of Control and the Academic Achievement of Fifth and Sixth Grade Students." An unpublished doctoral dissertation, University of Washington, May, 1976.

APPENDICES

APPENDIX A

The Children's Nowicki-Strickland I-E Scale

*+	(Y)	1.	Do you believe that most problems will solve themselves if you just don't fool with them?
	(N)	2.	Do you believe that you can stop yourself from catching a cold?
+	(Y)	3.	Are some kids just born lucky?
	(N)	4.	Most of the time do you feel that getting good grades means a great deal to you?
+	(Y)	5.	Are you often blamed for things that just aren't your fault?
	(N)	6.	Do you believe that if somebody studies hard enough he or she can pass any subject?
*+	(Y)	7.	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
	(Y)	8.	Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?
*+	(N)	9.	Do you feel that most of the time parents listen to what their children have to say?
*	(Y)	10.	Do you believe that wishing can make good things happen?
+	(Y)	11.	When you get punished does it usually seem it's for no good reason at all?
+	(Y)	12.	Most of the time do you find it hard to change a friend's (mind) opinion?
	(N)	13.	Do you think that cheering more than luck helps a team win?
*+	(Y)	14.	Do you feel that it's nearly impossible to change your parents' mind about anything?
	(N)	15.	Do you believe that your parents should allow you to make most of your own decisions?
*+	(Y)	16.	Do you feel that when you do something wrong there's very little you can do to make it right?
*+	(Y)	17.	Do you believe that most kids are just born good at sports?

*	(Y)	18.	Are most of the other kids your age stronger than you are?
*+	(Y)	19.	Do you feel that one of the best ways to handle most problems is just not to think about them?
	(N)	20.	Do you feel that you have a lot of choice in deciding who your friends are?
	(Y)	21.	If you find a four leaf clover do you believe that it might bring you good luck?
	(N)	22.	Do you often feel that whether you do your homework has much to do with what kind of grades you get?
*+	(Y)	23.	Do you feel that when a kid your age decides to hit you, there's little you can do to stop him or her?
	(Y)	24.	Have you ever had a good luck charm?
	(N)	25.	Do you believe that whether or not people like you depends on how you act?
	(N)	26.	Will your parents usually help you if you ask them to?
*+	(Y)	27.	Have you felt that when people were mean to you, it was usually for no reason at all?
+	(N)	28.	Most of the time, do you feel that you can change what might happen tomorrow by what you do today?
*+	(Y)	29.	Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them.
	(N)	30.	Do you think that kids can get their own way if they just keep trying?
*+	(Y)	31.	Most of the time, do you find it useless to try to get your own way at home?
	(N)	32.	Do you feel that when good things happen they happen because of hard work?
*+	(Y)	33.	Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
	(N)	34.	Do you feel that it's easy to get friends to do what you want them to?
*+	(N)	35.	Do you usually feel that you have little to say about what you get to eat at home?
*+	(Y)	36.	Do you feel that when someone doesn't like you there's little you can do about it?

*+ (Y) 37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?

*+ (N) 38. Are you the kind of person who believes that planning ahead makes things turn out better?

*+ (Y) 39. Most of the time, do you feel that you have little to say about what your family decides to do?

(N) 40. Do you think it is better to be smart than to be lucky?

* Items selected for abbreviated scale for grades 1-6

\+ Items selected for abbreviated scale for grades 7-12.

APPENDIX B

Scales for Rating Status Characteristics

Table B-1

PREDICTED SOCIAL-CLASS PLACEMENTS FOR VARIOUS WEIGHTED TOTALS OF FOUR STATUS CHARACTERISTICS, FOR OLD AMERICANS

Weighted Total of Four Status Characteristics	Revised I.S.C.—Predicted Social-Class Placement		Equivalent E.P. Ratings
12	A++		1++
13–17	A+	Upper Class	1+
18–22	A−		1−
23–27	B++		2++
28–32	B+	Upper-Middle Class	2+
33–37	B−		2−
38–41	C++		3++
42–46	C+	Lower-Middle Class	3+
47–51	C−		3−
52–56	D++		4++
57–61	D+	Upper-Lower Class	4+
62–66	D−		4−
67–71	E++		5++
72–75	E+	Lower-Lower Class	5+
76–84	E−		5−

Table B-2

AVERAGE I.S.C. (COMPUTED ON OLD-AMERICAN BASIS) AND AVERAGE E.P., FOR VARIOUS ETHNIC GROUPS

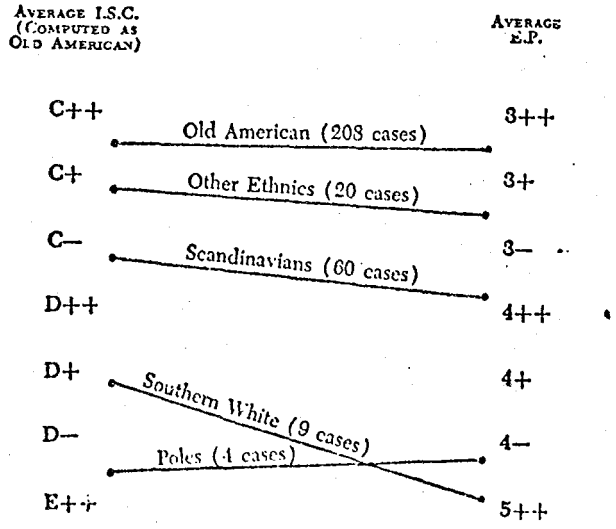

Table B-3

SCALES FOR MAKING PRIMARY RATINGS OF FOUR STATUS CHARACTERISTICS *

Status Characteristic and Rating	Definition
Occupation: Original Scale	
1.	Professionals and proprietors of large businesses
2.	Semi-professionals and smaller officials of large businesses
3.	Clerks and kindred workers
4.	Skilled workers
5.	Proprietors of small businesses
6.	Semi-skilled workers
7.	Unskilled workers
Occupation: Revised Scale	(See Table 7 on page 140.)
Source of Income	
1.	Inherited wealth
2.	Earned wealth
3.	Profits and fees
4.	Salary
5.	Wages
6.	Private relief
7.	Public relief and non-respectable income
House Type: Original Scale	
1.	Large houses in good condition
2.	Large houses in medium condition; medium-sized houses in good condition
3.	Large houses in bad condition
4.	Medium-sized houses in medium condition; apartments in regular apartment buildings
5.	Small houses in good condition; small houses in medium condition; dwellings over stores
6.	Medium sized houses in bad condition; small houses in bad condition
7.	All houses in very bad condition; dwellings in structures not intended originally for homes
House Type: Revised Scale	
1.	Excellent houses
2.	Very good houses
3.	Good houses
4.	Average houses
5.	Fair houses
6.	Poor houses
7.	Very poor houses
Dwelling Area	
1.	Very high; Gold Coast, North Shore, etc.
2.	High; the better suburbs and apartment house areas, houses with spacious yards, etc.
3.	Above average; areas all residential, larger than average space around houses; apartment areas in good condition, etc.
4.	Average; residential neighborhoods, no deterioration in the area
5.	Below average; area not quite holding its own, beginning to deteriorate, business entering, etc.
6.	Low; considerably deteriorated, run-down and semi-slum
7.	Very low; slum

Table B-4

Characteristics	Rating		Weight	Product
Occupation	5	×	4	20
Source of Income	5	×	3	15
House Type	7	×	3	21
Dwelling Area	6	×	2	12
			Weighted Total	68

Table B-5

WEIGHTS FOR COMPUTATION OF I.S.C.

Status Characteristic	Weights to Be Used if All Ratings Available	Weights To Be Used if Ratings on One Characteristic Missing			
		Occupation Missing	Source of Income Missing	House Type Missing	Dwelling Area Missing
Occupation	4	–	5	5	5
Source of Income	3	5	–	4	4
House Type	3	4	4	–	3
Dwelling Area	2	3	3	3	–

Table B-6

REVISED SCALE FOR RATING OCCUPATION

Rating Assigned to Occupation	Professionals	Proprietors and Managers	Business Men	Clerks and Kindred Workers, Etc.	Manual Workers	Protective and Service Workers	Farmers
1	Lawyers, doctors, dentists, engineers, judges, high-school superintendents, veterinarians, ministers (graduated from divinity school), chemists, etc. with post-graduate training, architects	Businesses valued at $75,000 and over	Regional and divisional managers of large financial and industrial enterprises	Certified Public Accountants			Gentleman farmers
2	High-school teachers, trained nurses, chiropodists, chiropractors, undertakers, ministers (some training), newspaper editors, librarians (graduate)	Businesses valued at $20,000 to $75,000	Assistant managers and office and department managers of large businesses, assistants to executives, etc.	Accountants, salesmen of real estate, of insurance, postmasters			Large farm owners, farm owners
3	Social workers, grade-school teacher, optometrists, librarians (not graduate), undertaker's assistants, ministers (no training)	Businesses valued at $5,000 to $20,000	All minor officials of businesses	Auto salesmen, bank clerks and cashiers, postal clerks, secretaries to executives, supervisors of railroad, telephone, etc., justices of the peace	Contractors		
4		Businesses valued at $2,000 to $5,000		Stenographers, bookkeepers, rural mail clerks, railroad ticket agents, sales people in dry goods store, etc.	Factory foremen, electricians (own business), plumbers (own business), carpenters (own business), watchmakers	Dry cleaners, butchers, sheriffs, railroad engineers and conductors	
5		Businesses valued at $500 to $2,000		Dime store clerks, hardware salesmen, beauty operators, telephone operators	Carpenters, plumbers, electricians (apprentice), timekeepers, linemen, telephone or telegraph, radio repairmen, medium-skill workers	Barbers, firemen, butcher's apprentices, practical nurses, policemen, seamstresses, cooks in restaurant, bartenders	Tenant farmers
6		Businesses valued at less than $500			Moulders, semi-skilled workers, assistants to carpenter, etc.	Baggage men, night policemen and watchmen, taxi and truck drivers, gas station attendants, waitresses in restaurant	Small tenant farmers
7					Heavy labor, migrant work, odd-job men, miners	Janitors, scrubwomen, newsboys	Migrant farm laborers

Table B-7

House Type: Revised Scale

1- Excellent Houses: This includes only houses which are very large single family dwellings in good repair and surrounded by large lawns and yards which are landscaped and well-cared for. These houses have an element of ostentation with respect to size, architectural style, and general condition of yards and lawns.

2- Very Good Houses: Roughly, this includes all houses which do not quite measure up to the first category. The primary difference is one of size. They are slightly smaller, but still larger than utility demands for the average family.

3- Good Houses: In many cases they are only slightly larger than utility demands. They are more conventional and less ostentatious than the two higher categories.

4- Average Houses: One-and-a-half to two-story wood-frame and brick single family dwellings. Conventional style with lawns well-cared for but not landscaped.

5- Fair Houses: In general, this includes houses whose condition is not quite as good as those houses given a 4 rating. It also includes smaller houses in excellent condition.

6- Poor Houses: In this and the category below, size is less important than condition in determining evaluation. Houses in this category are badly run-down but have not deteriorated sufficiently that they cannot be repaired. They suffer from lack of care but do not have the profusion of debris which surrounds houses in the lowest category.

7- Very Poor Houses: All houses which have deteriorated so far that they cannot be repaired. They are considered unhealthy and unsafe to live in. All buildings not originally intended for dwellings, shacks, and over-crowded buildings. The halls and yards are littered with junk and many have an extremely bad odor.

Table B- 8

Scale for Dwelling Area

Average family income in each tract (by thousands)			Rank
23.5	-	higher	1
20.6	-	23.5	2
17.6	-	20.5	3
14.6	-	17.5	4
11.6	-	14.5	5
8.6	-	11.5	6
Lower than 8.5	-	8.5	7

Table B-9

INCOME DATA FOR METROPOLITAN STOCKTON 1969 & 1975

AREA	CENSUS TRACT	AGGREGATE INCOME (MILLIONS) 1969	AGGREGATE INCOME (MILLIONS) 1975	AVERAGE HOUSEHOLD INCOME 1969	AVERAGE HOUSEHOLD INCOME 1975	PER CAPITA INCOME 1969	PER CAPITA INCOME 1975	AVERAGE FAMILY INCOME 1969	AVERAGE FAMILY INCOME 1975	MEDIAN FAMILY INCOME 1969	MEDIAN FAMILY INCOME 1975
AREA A (NORTH OF THE CALAVERAS)	30 *										
	31.01 — 31.03	$ 4.13	$ 12.56	$ 8,668	$ 11,950	$ 3,189	$ 4,975	$ 11,630	$ 15,913	$ 10,920	$ 15,542
	31.02 — 31.05	41.32	97.68	15,052	22,551	4,692	7,329	15,704	24,026	14,012	21,535
	32.01 — 32.04	20.95	45.07	15,922	22,852	4,668	7,284	16,379	24,051	14,799	21,363
	32.02 — 32.03	13.39	36.04	14,539	20,902	4,195	6,552	14,632	21,149	13,432	19,159
	33.01 — 33.04	31.08	49.37	12,105	17,195	3,955	6,171	13,221	19,291	12,170	17,592
	33.02 — 33.05	22.90	45.27	11,693	16,611	3,623	5,652	12,309	17,681	11,702	16,927
	33.03	18.68	35.25	13,284	19,153	3,566	5,564	13,145	19,025	12,535	17,989
	34 — 34.01 34.02	4.86	15.03	10,528	14,927	3,293	5,142	10,769	15,310	9,909	13,875
	35	15.85	29.01	14,360	20,626	4,151	6,484	14,810	21,577	12,205	17,573
	SUMMARY	$173.16	$369.29	$13,365	$19,294	$4,074	$6,367	$14,113	$20,721	$12,732	$18,524
AREA B (NORTH CENTRAL)	3	3.29	4.90	7,013	9,813	2,885	4,501	7,883	10,790	6,741	8,636
	4	25.87	40.92	8,218	12,481	3,752	5,855	10,714	16,495	9,326	14,411
	5	6.54	8.73	6,969	10,568	2,558	3,991	8,129	12,315	7,620	11,426
	9	17.88	23.00	9,891	14,017	3,384	5,279	10,398	14,862	9,478	13,569
	10	19.85	29.96	13,134	19,965	3,804	5,942	13,620	20,826	12,092	18,564
	11.01	19.22	26.43	11,495	16,434	3,538	5,524	11,940	17,506	11,256	16,479
	11.02	17.71	25.18	10,922	16,595	3,872	6,047	11,862	18,072	11,027	16,946
	12	31.59	44.66	13,565	20,028	4,840	7,552	17,709	26,338	13,459	19,635
	13	20.16	27.49	9,067	13,756	3,739	5,833	10,899	16,692	9,496	14,371
	14	18.48	27.18	10,080	15,307	3,824	5,967	11,785	17,997	11,013	16,743
	15	19.53	20.52	7,593	11,355	2,808	4,385	8,756	13,091	8,374	12,496
	16	5.51	7.04	7,617	11,362	2,717	4,242	8,133	12,461	7,656	11,636
	17	6.68	8.91	5,691	8,036	2,102	3,283	6,790	9,636	6,293	8,602
	18	9.39	13.85	8,415	12,780	2,842	4,436	9,428	14,276	9,222	13,867
	29	2.35	1.10	36,607	40,319	922	1,437	22,973	25,302	21,000	22,499
	SUMMARY	$223.05	$309.87	$9,560	$14,324	$3,443	$5,462	$11,124	$16,848	$9,825	$14,801
AREA C (EAST)	26	2.34	3.19	7,697	10,857	2,816	4,399	8,363	11,872	7,667	11,200
	27.01	9.98	14.41	7,115	10,148	2,294	3,583	8,103	11,600	7,574	10,468
	27.02	6.14	8.36	6,959	9,949	2,372	3,393	7,890	11,749	7,307	10,536
	36.01	12.61	17.31	11,719	16,623	4,008	6,260	13,459	19,241	11,289	16,400
	36.02	7.23	11.76	9,574	13,706	2,907	4,540	10,640	15,389	9,846	14,375
	37	8.77	12.44	9,007	12,906	2,640	4,123	9,787	13,840	8,678	12,033
	SUMMARY	$47.07	$67.47	$8,723	$12,450	$2,774	$4,330	$9,814	$14,126	$8,654	$12,144
AREA D_1 (DOWNTOWN)	1	13.80	16.29	4,033	6,120	2,422	3,779	6,009	9,025	4,732	7,571
	2	.72	2.51	3,902	5,239	2,308	3,601	8,336	11,036	4,100	6,241
	SUMMARY	$14.52	$18.80	$4,026	$5,988	$2,417	$3,754	$6,101	$9,206	$4,691	$7,484
AREA D_2 (SOUTH)	6	3.43	4.02	5,117	7,281	1,670	2,605	5,903	8,457	4,545	6,403
	7	9.78	11.17	6,363	9,044	2,095	3,267	7,556	11,081	7,094	9,985
	8	2.49	3.67	4,933	7,489	1,706	2,664	5,684	8,111	4,708	6,776
	19	10.61	14.21	6,290	9,549	1,952	3,045	6,853	10,206	6,571	9,690
	20	7.73	13.86	7,915	11,347	2,362	3,688	8,852	13,274	7,784	11,836
	21	4.28	7.40	9,266	13,407	2,311	3,607	9,264	13,692	9,318	13,369
	22	11.88	16.21	6,420	8,281	1,625	2,535	6,851	9,988	5,367	7,820
	23	9.90	13.26	6,925	10,512	2,294	3,579	7,878	12,084	6,435	9,966
	24	11.10	14.12	6,314	9,588	1,870	2,919	7,223	11,103	6,404	9,701
	25	5.58	7.89	6,346	9,637	1,400	2,183	6,672	10,142	5,329	8,177
	28	2.54	4.11	6,510	9,367	1,826	2,850	7,931	11,888	7,148	10,339
	38	9.71	14.34	8,599	12,798	2,308	3,605	8,654	12,878	8,265	12,058
	SUMMARY	$89.03	$124.26	$6,682	$9,984	$1,940	$3,046	$7,406	$11,146	$6,560	$9,734
SOUTH OF THE CALAVERAS (AREAS B, C, D_1, D_2)		$373.67	$520.40	$8,194	$12,219	$2,796	$4,406	$9,613	$14,457	$8,488	$12,385
METRO SUMMARY		$546.83	$889.69	$9,358	$14,446	$3,104	$5,052	$10,758	$16,631	$9,556	$14,594

SOURCE: 1970 CENSUS AND URBAN DECISION SYSTEMS, INC.

* 1970 CENSUS TRACTS

APPENDIX C

Letter to Parents

Dear _____:

Let me first introduce myself. I am a Program Specialist at the Multilingual-Multicultural Education Center, Stockton Unified School District. I am presently undertaking a study concerning Filipino American students in the district in fulfillment of a requirement for and Ed.D. degree at the University of the Pacific. To accomplish this, I will need some information about the subjects of my study, namely, their scores in the reading and math tests given in May, 1978. I also need to give these children a very short Locus of Control test. However, the school district requires parents' permission before I can do these. Your child is among those I wish to have as sample subjects, so I am requesting your permission to obtain your child's reading and math scores from the school district and to give him/her a Locus of Control test. These information will be kept strictly confidential; no student's name will appear in the study; and individual records will be destroyed as soon as the needed group data have been derived.

May I then request that you fill out the accompanying form and return it to me in the self-addressed envelop inclosed? I will highly appreciate your cooperation. I believe studies on Filipino-American children such as this can add to better understanding of the characteristics and needs of these children so that schools may use the results as basis for improving their learning opportunities.

If you need more information, please call me at this telephone number: 478-1819.

Very truly yours,

ESTELA G. PINGA

APPENDIX D

Parents' Information Sheet and Permission Form

Student's Name	Birth Date	Birth Place
Grade	School last year	School this year
Father's Name	Occupation	Birth Place
Mother's Name	Occupation	Birth Place

Date

The Superintendent of Schools
Stockton Unified School District
702 E. Madison, Stockton

Sir:

This is to inform you that Miss Estela G. Pinga has my permission to:

1. Obtain the reading and math scores of my child from the school district records;

2. Administer to him/her a Locus of Control Scale for children.

Very truly yours,

Figure B-1

Census Tracts, Stockton